State Board Number

APR 27 1929

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THE JOURNAL

OF THE

American Medical Association

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VOLUME 92, No. 17 | 535 North Dearborn Street, CHICAGO, ILL. | APRIL 27, 1929

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Entered as Second-Class Matter, June 25, 1885, at the Postoffice at Chicago, Ill., under Act of March 3, 1879. Acceptance for mailing at special rate of postage provided for in Section 1103, Act of October 3, 1917, authorized on June 14, 1918. If undeliverable, return postage is guaranteed

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The Journal of the American Medical Association

Published Under the Auspices of the Board of Trustees

VOL. 92, NO. 17 CHICAGO, ILLINOIS APRIL 27, 1929

RELATIONSHIP OF THE FUNDAMENTAL LABORATORY TO CLINICAL TEACHING *

HANS ZINSSER, M.D.

BOSTON

The storm and stress period through which medical education has been passing is largely due to the fact that experimental methods in the medical sciences have begun to come into their own. What Claude Bernard said a generation ago in regard to the general empiricism of medicine as contrasted with the more exact sciences is still to some extent true, but the influence of the laboratory sciences has considerably modified this and will encroach more and more on the purely doctrinal and empiric methods of practice. While the importance of judgment, personality and character will never be entirely displaced by pure science in the management of patients, enough accurate scientific fact and method have already been introduced into medicine to make a thorough training in the fundamentals from which these facts are derived essential to the development of the personal qualities.

It is the recognition of this situation which has led within recent years to the reorganization of the clinics and the replacement of men who were purely skilful clinicians by teachers who were capable of applying the results of laboratory investigation to the interpretation of symptoms and the rationalization of therapy. This has been the real issue of the clinical problem which has so agitated medical circles during the past ten years, and in which the controversy has been so erroneously centered on whether this new variety of clinician should spend full time or half time at his work. The real problem has been to bridge the gap between the theoretical study of basic sciences and their useful applications to the field of practice. To those of us who have followed the reconstruction period as members of medical schools, the development of a special group of teaching clinicians has appeared only a rational and essential response to an urgent need; and it has seemed to us entirely unimportant whether or not these men were placed on a strictly academic basis. The period of unrest which accompanies every drastic change is coming to an end. Like the American people who, as Raymond Pearl has statistically shown, have settled the prohibition problem by deciding that they want both their high ideals and their liquor, the full-time clinicians are happy at last in having both a sense of self-sacrifice and adequate salaries. Through most of these changes the laboratory departments have carried on essentially unaltered, since they attained the dignity of independent teaching units a generation ago, and required little fundamental modification. Yet the introduction of well developed laboratory divisions into the clinical departments has to some extent redefined our obligations and opportunities.

Though we are inherent parts of the university organization, and represent for our several institutions the subjects in which we are engaged, we stand between two extremes—on the one hand, the scientific development of our fields; on the other, their practical applications to an essential profession. With the usually generous resources and academic freedom at our disposal, it is possible to do justice to both. But it is not easy, always, to find the balance between them, particularly because what was pure science yesterday is often practice today and is perhaps obsolete tomorrow.

There is a growing and clearly expressed fear in the minds of many distinguished members of the profession that the preclinical laboratories of medical schools are too deeply absorbed in the investigation of their sciences and are unmindful of their obligations to the young men who are preparing for medical practice. It is charged that we are trying to breed second-rate investigators instead of physicians and surgeons. The suggestion has been made that research and teaching are incompatible and should be divorced; that the fundamental sciences applicable to practice could be taught far more cheaply and appropriately in direct coordination with clinical procedure and therapeutic application. Were medicine merely a trade, this would be a tenable position. Were it a pure science, it would be absurd. As it is, neither one nor the other but something of each, this contention deserves serious consideration.

There are two separate problems involved: one, to what extent the medical student should be taught fundamental principles apart from direct clinical application; the other, in what manner teaching and investigation influence each other.

To find the proper reply to the first question, we may ask ourselves, What is the objective of the four years of medical discipline? Is it to turn out medical mechanics and high class technicians who shall be capable on graduation of exercising manual skill and applying diagnostic and therapeutic rules to the management of the sick? Or is it to develop the minds of students in such a manner that they can appraise evidence from observation and deduce truthful conclusions by reasoning and the coordination of facts?

The medical student who intends to become a practitioner devotes four short years to learning the premises from which all his future reasoning must take its departure. The last two of these are spent in clinics

* Read before the Annual Congress on Medical Education, Medical Licensure and Hospitals, Chicago, Feb. 18, 1929.

which bridge for him the transition from the principles to their application. All the rest of his life is passed in practice, where it is easy for him to perfect himself in the exercise of his skill and ingenuity but excessively difficult for him to follow, even in his own specialty, advances in the basic sciences which may, in the turning of a hand, antiquate his accepted practice or put in his grasp new and powerful weapons to increase his usefulness. Two years is all that is given to him to acquire an intelligent comprehension of the forces of investigation from which medicine is nourished. How shall we help him to spend this time? In teaching him tricks of technical manipulation, in making him a parrot of contemporary theory, in exhausting his intelligent curiosity in an excess of detail? It rests with the laboratories whether the student shall enter the clinic with the destiny of becoming a member of a trade, or of a profession which perhaps more than any other calls for a capacity for growth. In the progress of medicine, new conceptions will continue to flow from the laboratories. Clinical progress will adapt these achievements to actual circumstance by humane common sense. To prepare the future physician to apply the lever of his intelligence to the problems that will confront him, we must present to him the premises of his practical reasoning with a thoroughness sufficient to persuade him of their validity, and help him to comprehend the methods by which these facts have been revealed. We must follow the precepts of John Stuart Mill by putting his mind "into a state in which it will be fitted to observe, not teach him how to do a thing, but how to make himself capable of doing it."

In all this there is not the slightest suggestion of the absurd intention of making our students into investigators, any more than we would be silly enough to expect to make poets of sophomores with whom we might read Keats. We endeavor to present evidence and support it by experiment, instead of pigeonholing and cataloguing the minds of intelligent young men with categorical statements which they would not accept without evidence. For let it not be forgotten that the medical students of today are not apprentices of a trade. They are as a rule fully as intelligent as their teachers—often far more highly trained in the fundamental sciences—and not in any case willing to memorize and chant a medical catechism. I daresay that antitoxin would be quite as potent if administered by a gentleman who knew only that it was a sticky fluid in a bottle which was used in diphtheria; and diabetic patients could be quite adequately injected with insulin by men who believed that the islands of Langerhans were somewhere in the South Pacific. Undoubtedly, it has been and is being successfully done. However, not even the ardent advocates of rapidly trained and cheap physicians for farmers and poor people would admit this sort of thing as the objective of medical teaching. If it takes longer and costs more to train physicians and surgeons today than it did a generation ago, we cannot avoid the issue by sticking our heads into the sand. If proper training makes professional services too expensive for those who need them, the answer is not to train less adequately but to cheapen the service by other means, some of which sociological adjustment, group practice and the expansion of hospital service are finding for us.

While, therefore, it appears utterly indefensible to urge any relaxation in the discipline of the preclinical sciences, there may be justifiable differences of opinion in regard to the manner in which our subjects are presented. This is largely a matter of common sense, since pedantry and what has been called "syntax grinding" are quite as common in science as they are in other subjects; and an unimaginative specialist may completely forget that the eager young men who sit on his benches have come with the purpose of studying medicine, and not primarily bacteriology, physiology or chemistry. While our courses should be scientifically sound and uncompromising in their insistence on the comprehension of principles, it is surely quite possible to achieve this by selecting much of the material from that directly pertinent to medicine, and to correlate experimental data with clinical phenomena. Frequent neglect of this important consideration is at the bottom of much of the complaint of so-called overteaching in the sciences.

It is not, of course, an easy task, this selection of methods and subject matter in a manner that will do justice at the same time to the subject itself and to the needs of the medical student. To do it requires a considerable background of experience and judgment, and it is apparent to those who have grown up in the medical laboratories that it can never be achieved by a teaching force not actively engaged in investigation. Indeed, no suggestion appears to me more likely to defeat its own purposes than the one made by a number of critics that teaching and research be separated. The heart of good pedagogy—teachers' colleges to the contrary—is knowing one's subject; and in subjects which are as rapidly moving as those contributory to medicine, no one can know, in the true sense of the verb "to know," who is not actively engaged in trying to assure himself of truth by his own brain and senses. "When the blind lead the blind, they both fall into a ditch." Teachers who set before their students the warmed-over scraps of other men's thoughts without a spice of their own experience and intelligence to give them flavor can ruin the healthiest scientific appetite and smother enthusiasms that are ready for awakening, like the dull pedants of our youth who manage to transform the Homeric epic into a nightmare of irregular verbs.

Moreover, what sort of mentality could one expect of men willing to spend their lives face to face with the intellectual adventure of a growing science and stand, like Methodists in a wine cellar, incurious and perfectly sober? Would a full grown man, with a healthy mental and spiritual thirst, be willing to devote his active years to becoming a scientific file clerk? The future of medicine would be ill served were we to turn our students over to pedagogues of science who would teach them the practical technical tricks of mind and hand in the same manner in which trained seals are taught to ring a bell to get a herring. Broad culture in a science, judgment, insight and selective interpretation are not things that can be learned from books or acquired without productive effort. And education is not the contact of a student with a well adjusted adding machine, a book of formulas, but is the association with other minds in scholarly endeavor.

This does not mean that we are flippantly indifferent to the criticisms often justly made of overspecialization of our courses for medical students. This error is admittedly often committed. But the remedy does not lie, I believe, in dissociating teaching from research, since it appears to me obvious that only the most experienced and well informed can properly select from the ever-

changing and growing materials of a large field those things which are soundly pertinent to medicine, and find that balance between adequate fundamental preparation and specific application which constitutes intelligent teaching. This is not a job for the dilettante; properly performed it would give the student of medicine an adequate understanding of the premises of his profession and at the same time create an enthusiasm for scientific methods and logic. If, as unquestionably is often the case, this function is not properly performed, it is due not to the background of investigation which alone could make science possible but to a lack of common sense.

For it is obvious that the function of a scientific department is a twofold one. The introduction to a science in which the fundamental subject matter is cut to a minimum of the material necessary to stimulate interest and prepare the student for advanced study is the part that should require the most careful judgment, and, in my experience, has been successfully performed only when the wisest and most accomplished members of the staff guided this part of the work. If such a minimum is taught to medical students in general and opportunities are offered for the relatively few who wish later to specialize in a group which is seriously pursuing the science in all its ramifications, the department is fulfilling its purposes.

Although the establishment of clinics with fully equipped laboratories is an obviously desirable thing, this autonomous organization of the clinics has had a certain detrimental contrecoup on the fundamental departments which, with a little wisdom, would seem easily overcome.

A modification of our system which would probably contribute materially to a better coordination between preclinical and clinical teaching would be a method of extending the influence of the laboratories more distinctly into the clinical years. At the present time, in spite of a certain amount of physical diagnosis and ward service in the second year, a student is apt to get the impression that when he passes from the second into the third year he is leaving behind a large mass of material which has been imposed on him as a sort of punishment before he can be rewarded by contact with patients. As a matter of fact, he does leave behind a great many things which he should take with him, and although clinics are well equipped with laboratories, there are few hospitals in which the laboratory methods actually applied to the patients are emphasized to the students except as notes on the charts. It would be relatively easy, with a little more cooperation on the part of the clinicians, to extend the type of joint teaching now very usefully employed in the clinical pathologic conferences to such subjects as bacteriology and physiology—an undertaking which I know would meet with enthusiastic response on the part of the laboratories. Such cooperative teaching would be particularly useful in the fourth year, when a student should be reminded of the fundamental significance of many of the phenomena observed in the sick in a manner which would bring back to him his preclinical training, and I believe increase his interest in the basic understanding of disease.

It is obvious that the twofold functions of the preclinical department are the following: It must represent its subject in a scholarly manner, providing opportunities for advanced training in investigation, and it must be capable of selecting with judgment and common sense the minimum necessary to prepare medical students for a rational clinical education. The last is a task which can be successfully performed only by one with a background of broad experience and which requires a far wiser and more accomplished person than is needed for the more advanced and specialized teaching.

A thing which therefore must not be lost sight of is that, just as the academic clinical department forms the transition between the fundamental laboratories and the practice of medicine, so the preclinical laboratory is the applied science of medicine derived from chemistry, physics and biology. It has been thoroughly recognized that the clinic must possess its own instruments of information in chemical and bacteriologic laboratories. It has not yet been recognized in the same manner that a preclinical laboratory, in fulfilling its twofold function, should be provided with personnel and equipment by which it can properly carry out its task. A great improvement of conditions has been brought about, of course, by the close association of medical schools with universities, and every properly managed department of biochemistry, physiology or bacteriology leans heavily on its colleagues of the pure sciences. But this is just as inadequate as it would be to have the clinics rely entirely on the preclinical departments for their chemical and bacteriologic ward services. Just as these special activities need to be incorporated within the clinic, just so do we require in the preclinical laboratories the intimate collaboration of men trained in organic and physical chemistry and certain branches of physics. The development of the future should bring about an organization of the preclinical laboratories analogous to that which has occurred in the clinics. Since the medical point of view as an applied science of medicine must be rigidly preserved in order to fulfil the functions of these departments in medical schools, a part of the personnel and, perhaps, the dominating part should have had medical training. But associated with these men there should be others who have been rigidly trained in the basic sciences, who can apply the methods of physics and chemistry to medical problems in a professional manner and preserve medical literature from the output of pseudoscientific dilettantism which is daily increasing.

The accomplishment of such a condition is largely a matter of money, and this involves the extremely important problem of diversion of financial support to personnel from the purely material application to equipment and buildings. I will not say anything about the salaries of professors. Men who have gone so far have usually done so on the basis of something inside them with which money had little to do. What is of far more immediate importance is the remuneration of men of the instructor and assistant professor class, on whom rests the responsibility of the future of scientific medicine. It is a mistake to assume that such men should move every few years in search of a better position. It should be possible in well run medical schools for men of this type to look forward to an economic status at least commensurate with that of most of their intellectual and social equals by the time they are 35 or 40, so that, if at such periods they are invited to other positions, the chief inducements shall be more advantageous working conditions and not purely a matter of dollars and cents. At the pres-

ent time, a laboratory worker who has had the good sense to call himself a clinician can immediately place himself in a position to earn more by half than another man with exactly the same interests and training who accepts an analogous position in a preclinical laboratory. Indeed, the former has the added advantage of gaining access to human material, the unattained goal of most bacteriologists, at least, who are working in medical schools. Young men who begin in science today, though they may have spent four years at college, four years in a medical school and two years in a hospital, and have shown a fine intellectual interest in the basic sciences—which has led to their selection—are starting at 28 or 30 on salaries that are paid to chauffeurs and policemen, far less than can be commanded by a broker's clerk or a floor walker. The same men—if they are very successful, so that they may be encouraged to remain in science, and are desired by their institutions—may attain at most five or six thousand dollars a year, if by the age of 40 they become assistant or associate professors. This situation not only is wrong but is responsible for the fact that the best brains are being diverted from the medical sciences. Second raters, or men of means, or those who have married wealthy wives will be likely to furnish the majority of the recruits for scientific careers. Perhaps in the end bacteriologists, physiologists and pathologists of the United States may be running second only to the foreign nobility, and American heiresses will buy themselves scientists instead of dukes.

It is human intelligence that advances science; material equipment is merely the apparatus through which understanding can express itself. An extraordinary amount of useless slag has been turned out with the most expensive Kjeldahls, potentiometers, incubators and centrifuges. What is needed is not more instructorships and fellowships ranging from five to fifteen hundred dollars a year but better livelihood and a more adequate and respectable position for the smaller number who are ready to devote their lives to teaching, thought and investigation, without ambition of riches, but with the same desires for freedom from anxiety and for commensurate community position which are possessed by normal persons in other walks of life.

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Syphilis and Congenital Deafness.—Just a word about syphilis as a cause of congenital deafness. That it is so I have no doubt, but that it is commonly so I have a good deal of doubt. In sporadic congenital deafness we have a subclass which may contain some cases but, in my opinion, not more than 2 or 3 per cent. It can hardly occur to a greater extent than congenital syphilis, as shown by the Wassermann reaction applied to children generally. The following figures from my friend Prof. Leonard Findlay of the University of Glasgow is the nearest guide I can give you. "In the children's hospital we found that only 2.6 per cent of the patients gave a positive Wassermann reaction, and of the children suffering from scarlet fever in Ruchill only 0.8 per cent gave a + Wassermann reaction. The scarlet fever patients in Ruchill were chosen as it was considered they gave a better sample of the whole population. The other children were considerably younger, mainly under 3 years of age, while the children of Ruchill were chiefly over 6 years. In any case these figures show how rare congenital syphilis must be in the total child population of Glasgow. To find deafness as the clamant symptom is the rarest thing. I can only recall one or two cases."—Love, J. K.: A Classification of Deafness Based on the Effect of Deafness on Efficiency in Life, *J. Laryng. & Otol.*, February, 1929.

EDUCATIONAL RELATIONS OF THE PROFESSIONS *

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To American educational progress, specialization in various academic divisions has contributed greatly. With the increase of specialization, however, has come the danger of one educational unit isolating itself from another. So far have we gone in creating departmental independence that it is regarded as a notable exception when departments cooperate in a study important to each, such as the one conducted in this city by professors of mathematics, physics, astronomy and geology. The independent college is constantly facing isolation from graduate and professional schools; and each of the latter from all the educational achievements in other divisions of the academic world. Conscious of the danger, some of these divisions have learned the importance of cooperating in the solution of common problems, especially the colleges and the schools represented in the powerful regional associations.

Among the professions and professional schools the danger likewise exists and to some extent has been met in the same way. A study [1] of theological seminaries in the United States published in 1924 shows that these institutions, which prepare for one of the oldest of the learned professions, have indeed intensely specialized and thereby gained a degree of expertness in linguistic and philosophical subjects—particularly Latin, Greek, Hebrew, systematic theology and church history. It shows also that these institutions, if one may judge from their curriculums, assume that a minister is to function in an unchanging world. There is no evidence, for instance, that theological schools as a group realize their need to have students abreast of discoveries in physical science. This results directly in the situation that is found in the churches throughout the land. In this year of grace, seventy years after the publication of the Origin of Species, some theologians who virulently express disapproval of Darwin's hypothesis are warring bitterly on other theologians who directly or indirectly have known its influence; and the sheep of the former have passed laws in some states to prevent the sheep of the latter or, indeed, any others from seeking truth in a field called evolution. Just so in 1999, seventy years from today, some theologians, content to be ignorant of the implications of the Einstein theory, will violently oppose those fin-de-siècle liberals who will stoutly declare that there is no reason for a true religionist to fear the truth in any form, even if it involves strange conceptions of time and space, and who indeed may say that even these are astonishingly consistent with some of the comments on immortality made by Jesus of Nazareth. From a knowledge of the physical sciences as known today, theologians have nothing to fear and possibly much to gain. From a knowledge of the social sciences also they may learn things that will enable a larger number of them to become recognized leaders of the people in times of social strain. And, too, if only more of them would keep in touch with developments in modern education they could soon change the least efficient of our educational institutions—with their

* Read before the Annual Congress on Medical Education, Medical Licensure and Hospitals, Chicago, Feb. 18, 1929.

1. Kelly, R. L.: Theological Education in America, 1924.

inadequate admission systems, curriculums, equipment in libraries and personnel—into schools worthy to provide spiritual leadership in a democracy.

Another learned profession, law, has made progress by specializing in its field. The curriculum of the law school, the papers read at associations of legal practitioners, the publications issued by publishing houses known chiefly to lawyers, show how intensely this specialization has been developed. Recognizing the dangers of an extreme provincialism, some progressive teachers of the law have been pondering the larger social relations of their subject and have been studying methods in other educational divisions for the purpose of improving legal instruction. Addressing the members of the New York bar, Jan. 25, 1929, Charles Evans Hughes [2] emphasized the need of cooperation of bar, bench and public in raising standards in the administration of justice. Specifying certain grave difficulties, he said: "The very size of the bar, with its many thousands of members in this great metropolis, is baffling. We have reason to fear that many are coming to the bar who are unfitted to appreciate the requirements of professional duty. We have not only the problems of technical legal education, the special equipment for practice, but the greater difficulties with respect to general culture and ethical training." A study of the profession in its larger relations has been instituted at Columbia and Johns Hopkins by enlisting a professor of economics expert in the whole field of social science. Naturally the problems of technical legal education must be examined; even the sacrosanct case system must be made to show whether it really is the most effective method for training practitioners. Methods of selecting students of law are the subject of experiment. The Yale Law School, aware of the tremendous development in new types of educational measurements, instituted experimentally two years ago a type of entrance test which already shows interesting results. At Columbia under Dean Harlan Fiske Stone (now a justice of the supreme court) were devised objective and speedy tests of the achievement of law students. Moreover, the law schools, if they wish it, have at hand the means to experiment in solving the problems to which Mr. Hughes has called attention, for as I shall show presently there is a widespread interest among colleges in the more accurate measurement of men's achievements and personalities.

No profession, no educational group in the United States, has made greater progress through specialization than medicine. It shows in the very notable achievements of research workers in the departments. It shows in the records of the American Medical Association, the Council on Medical Education and Hospitals, and the Association of American Medical Colleges. It is most remarkable in the record of the profession in establishing criteria, classifying medical schools, and promoting medical education. At the same time medicine, as shown by the journals of this congress and notably by the selection of members of the Commission on Medical Education and the Commission on the Cost of Medical Care, has endeavored to guard against isolation from the rest of the educational world. The medical profession has sought to learn of advances in other educational fields by inviting to the sessions of one or another of its associations such experts in these fields as Chadsey of Illinois, Haggerty of Minnesota, Charters of Ohio State, and Trabue of North Carolina; and, what is even more significant, their ideas have been discussed. Moreover, in the reports of the Commission on Medical Education, Dr. Rappleye [3] has called attention to some of the ways in which other divisions of education are seeking to meet their responsibilities. And yet the record of educational research in medicine is not long: when I examined a bibliography [4] of 3,650 items of educational research of the last ten years I found only seven related directly to medical education. I have found more than that in the papers of the National Student Health Association—the work of which is so lamentably little known to college deans and presidents. There has been an attempt to avoid the isolation of medicine from education; meanwhile there is evidence of isolation of education from medicine. That is being changed, because from medicine the rest of the educational world seeks aid in doing its best for the individual student through a health program including mental hygiene for each individual; and because medicine likewise has problems which the experience of the rest of the educational world may help to solve.

Are the professions getting the gifted students from the colleges? Are the theological seminaries securing men competent to become the spiritual leaders of our country? How do they determine that a candidate has a "vocation," a real call of God to His service? Are the law schools receiving men who will measure up to Mr. Hughes' conception of a man at the bar? Are the gifted college men and women entering medicine? Is medicine getting all it needs of such students? Are its students as good as those who go into engineering, business, teaching, law, the ministry? Nobody knows. To be sure, 20,000 applications by 8,900 persons have been studied,[5] of whom 6,400 were accepted and 5,200 actually entered the medical schools; and it has been shown that 73 per cent of those who entered during the last ten or fifteen years were graduated.

The correlations of college grades and medical school grades [6] have been studied. Grades are apparently the most useful standard we have as yet. But since 1910 we have been learning a great deal about school and college grades and their shortcomings. In assigning grades, teachers have confused achievements and moral qualities. How often have teachers who have known that a student's attainment has not been such as to enable him to go into a higher class been tempted to make allowance for the fact that the boy tried hard. Many ingenious studies have proved that grades have been subjective. Indeed, the situation in the educational world at large led Thorndike to describe it as "scandalous." Then began the tremendous movement to secure more accurate, objective and comparable measurements of educational achievement. Intelligence tests, so called, were tried. Today psychologists say those things were not measures of intelligence but, to quote Prof. Knight Dunlap, "measures of a certain kind of achievement at a given time under certain conditions." This comment may comfort those who have read a certain bulletin of the National Research Council.[7] Some experimental tests emphasized spell-

2. New York Times, Jan. 26, 1929.

3. Third Report of the Commission on Medical Education, October, 1928, p. 33.

4. Monroe, W. S., and others: Ten years of Educational Research, 1918-1927, Bureau of Educational Research, College of Education Bull. 42; University of Illinois Bull. XXV, number 51, Aug. 21, 1928.

5. Myers, B. D.: Report on Applications for Matriculation in Schools of Medicine for 1927-1928, Bull. A. Am. M. Coll. 3: 193 (July) 1928.

6. Wyckoff, John: Relation of Collegiate to Medical Student Scholarship, Bull. A. Am. Coll. 2: 1 (Jan.) 1927.

7. Cobb, M. F., and Yerkes, R. M.: Intellectual and Educational Status of the Medical Profession as Represented in the United States Army, Bull. National Research Council 1, part 8, number 8, 1921. Today the title would be "U. S. Army Alpha Scores of Medical Men in the U. S. Army."

ing as a measure of intelligence. Dean Cross of Yale has told me that when he was writing his life of Henry Fielding he used to receive manuscripts and rare editions from a wealthy collector in New York whose custom it was to communicate in his own handwriting. His idiosyncrasies in spelling were remarkable. One day in the New York library of the rich man Cross noted a portable typewriter. "You don't use this when you write to me," said Cross. "No, you are one of three persons to whom I write in my own handwriting. You understand me and my spelling. To all others, I tap out letters on this machine and down in the corner I put 'Dictated but not read.'" There was nothing wrong with his intelligence!

"Intelligence tests," then, have given way to various kinds of measurements which may be called achievement tests. The American Council on Education has been experimenting for several years with a psychologic examination devised by a committee under the chairmanship of Prof. L. L. Thurstone. Each year the results are studied and a new test is devised. The individual scores and norms are helpful in the selection of college students; the comparative total scores of colleges and the comparison of the ranges of scores in different colleges have already proved important to committees and commissions measuring the effectiveness of colleges. The Modern Foreign Language Study under the auspices of the American Council on Education used achievement tests in foreign languages in the United States and Canada to measure not only individuals but schools and colleges and national groups of institutions. The Committee on Personnel Methods of the American Council on Education has recommended to the colleges twenty-three achievement tests in college subjects. These are being widely used, most conspicuously in the current study of educational institutions in the state of Pennsylvania by the Carnegie Endowment for the Advancement of Teaching. It is already clearly established that scores on these achievement tests are more reliable indexes to the achievements of students than grades such as have been given in the past. Combined with the high school grades the achievement tests, including the psychologic tests, have given a more reliable basis for admitting students to college.

The professions likewise may find such achievement tests useful. The church boards of education have cautiously inquired about these measurements in connection with recruiting for the ministry. Law schools are experimenting. Medical schools are showing an interest in tests of this type. At the University of Michigan under the direction of Dean Cabot the medical school, after a detailed study of the origins, qualifications and preparation of those who have applied for admission during an eight year period, established special examinations in 1928.

A scholastic aptitude test for medical schools has been made by Dr. F. A. Moss and Dr. O. B. Hunter of George Washington University Medical School. It is proposed to use it as a determining factor in selecting students. During the first ten minutes the student studies a diagram and a paragraph about the heart and great vessels; during the next five minutes the student studies a passage such as may be found in medical literature. Then for the remainder of an hour the student, working as rapidly as possible, takes six tests: (1) a scientific vocabulary test of forty items; (2) a test of premedical information (100 items); (3) a visual memory test of twenty items based on the diagram first studied; (4) a memory content test based on the paragraph first studied (twenty items); (5) a comprehension and retention test (twenty items) based on the passage in "Speech Defects," and finally (6) a test of the "understanding of printed material" (fifteen items). In its preliminary form the test was tried with the 1927-1928 freshman class of the George Washington University Medical School. Purely on the basis of the scores made, it was predicted that ten of the seventy-eight students would be dropped or required to repeat a year of work before they completed the medical course. At the close of the first year five of these students were dropped for poor scholarship and two were made to repeat the course. Of the other three the average grades in the medical school were below 80 (75 being the passing grade). In a revised form the test was given to the class entering in September, 1928. On the basis of the scores it was predicted that seven of the eighty-three students would be dropped or made to repeat at the close of the year. Of these seven students, up to the present time, two have been dropped for poor scholarship and the average grades of the rest are 71, 78.6, 66.6, 44.3, 61.3—all but one below passing. A comparison of the test scores with the grades in medical school gives the very high correlation of 0.72. In studying the scores of this year's group, Dr. Moss predicted purely on the basis of the test scores that eight students would win distinction or grades near distinction. So far, six of these students have grade averages of 90 or above and the other two are in the upper half of the class.

These results have been obtained with a group of students very small from the statistical standpoint; but they are so striking as to make it desirable to experiment with a much larger group. Therefore the American Council on Education has printed this test for distribution at this congress. It is proposed to give to any medical school without charge a sufficient number of tests to give to the first year medical class in April or May. The tests can then be returned to Dr. F. A. Moss, George Washington University, Washington, D. C., for scoring. Dr. Moss has undertaken to send the results to the deans in time for them to use the scores, if they so desire, in connection with the elimination of students at the close of the present year.

Obviously, if convenient tests which will reliably predict academic success in professional schools can be worked out, a great waste can be avoided for the individuals and institutions which now are losing time and energy in trying to make educational adjustments which cannot be made. Not only at the time of admission are these tests important; even more significant is their use in final examinations for degrees. If we can determine the attainments which we desire a person to have if he is to receive a D.B. or an LL.B. or an M.D., and if we can devise objective tests of these attainments, we shall rid our whole educational system of relatively meaningless time measurements and we shall, if we develop the already important program of discovering and guiding the abilities of the individual, solve the problem of economy of time in education to which the Council on Medical Education and Hospitals vigorously directed attention in 1915 and which still, in spite of some evidence of progress, awaits solution, as the program of the Department of Superintendence of the National Education Association shows.

Achievement tests are making grades and other scholastic measurements of men more reliable. But

the church desires to know the character of a prospective minister; the bar wishes to be sure of the virtues of men who are to be lawyers; and the medical profession, as the proceedings of the 1927 congress emphatically show, wants to learn something about the ethics of future medical practitioners. Industry has been especially insistent in its desire to know about the personality of its possible recruits. The colleges are trying to find out. The *Educational Record* for July, 1928, contains a statement of the situation. The American Council on Education Committee on Personnel Methods has devised a personal record card for the use of schools and one for the use of colleges. On it are recorded such items as will enable a dean of a medical school to gain a more complete understanding of a man than grades and test scores will give him. Achievements of unusual quality, extracurriculum experiences, records of employment, vocational interests, social background, and personality ratings are recorded.

Personality measurement in the past in the army, in industry and in education has been based on rating scales. In the opinion of the Committee on Personality Measurement, the rating scale has not yet proved its reliability. To give the device a fair trial the committee has made the best one I have seen by keeping down to five the items to be considered on a five step scale expressed as objectively as possible. The scale is being widely used among colleges, some having embodied it in their admission application forms. The trouble with the rating scales I have illustrated on another occasion by referring to a remark about Disraeli. His wife declared that he had high moral courage but no physical courage. This was a personal rating. She was his wife; she doubtless had opportunity to observe this. But not knowing her standards we do not fully understand the significance of her rating. Fortunately for our appreciation of her husband she went on to say that she thought he had no physical courage, because when Dizzy stepped under his shower he did not have the courage to pull the cord which brought cold water down on him and she had to pull it for him! The rating even by a qualified observer helps one to understand Disraeli less than does the statement of the reason for that rating.

So descriptions of personality in terms of significant actions observed are being accumulated in the colleges for the guidance of college officers, possible employers and deans of professional schools. Note how they may give a conception of a student:

An eighth grade boy, "finding in an English assignment, the introduction to Burns' 'Cotter's Saturday Night,' a reference to Robert Fergusson's 'The Farmer's Ingle' as a possible inspiration of Burns' poem, looked up Fergusson's poem in the home library and compared it with that of Burns. At the same time desiring to read Burns in the Scottish way he mastered the phonetic system of Sir James Wilson's 'The Dialect of Robert Burns as spoken in Central Ayrshire' which he also found in the home library, and so interested the boys of his class in the pronunciation of Scottish words that even at the end of the year the lads still called each other by appropriate Scottish nicknames and used Scotticisms which they found in Burns and Wilson."

An eighth grade boy "at the age of 11 began collecting diatoms from local ponds and streams and studying their forms under his own microscope. He now possesses a collection of microscope slides, including some presented to him by scientists in the Department of Agriculture and the Carnegie Institution, specimens collected by Shackleton, Scott and other expeditions."

An employer of a high school graduate wrote: "During the course of my association with ——— I have found him to be a steady and reliable worker. When called upon for extra work he has never shirked, as for example: One day when I was out of town, Mr. ———, after working his usual length of time, was asked to put in a few more hours of work because of the unusually heavy amount of business that had come into the plant. Without quibbling, he cheerfully agreed to do so. When he had put in more than the time agreed upon, he was told that he could go home; but seeing the amount of work still to be done, and knowing that as I was out of town it would take an almost superhuman amount of work from the other employees to get all the business out, he refused to go. Instead, he fell asleep in a car belonging to one of the employees and, after sleeping only one hour, was up and working again. He had worked thirty-six hours and had had only one hour of sleep. When Mr. ——— first was employed by me, he earned only $5 a week. When he left, his salary was $40 a week."

It is an art to write brief descriptions of actions significant of personality. It is the art of Dante and Shakespeare. It is an art which teachers can learn and which they can practice. To help them the personality measurement sheet bears these directions:

Describe briefly and concretely significant performances and attitudes which you yourself have observed.

Let your statements answer specifically the questions of the rating scale by showing *how* the student manifested the qualities mentioned.

Do not be satisfied with the statement of an opinion concerning matters of fact, if the facts themselves can be presented.

Select some illustrations of conduct which are consistent with the personality of the student as you have observed and understood it.

Bear in mind that from as many accurate observers as possible the college desires to secure concrete descriptions of the student's personality as exhibited in many situations, and that the purpose is an understanding of the student's personality as a whole so that he and all concerned with his education may guide his development to its highest.

The descriptions are based on observed actions. But, like Browning, one may feel that "it is not what man does exalts him; but what man would do." No psychologist has yet measured what it is most important to know—the human will. But men have shown the intensity of their desires by the things they have done in order to gain their ends. These manifestations can be observed and recorded. If the schools and colleges will accumulate such descriptions of personality, the officers in charge of admission to a professional school will have valuable guidance in the selection of their students. These personality measurement sheets have been in use only since last September, but reports which I have received from schools and colleges where they have been used are enthusiastic. One institution declared that whereas high school and college teachers had hitherto declined to rate their students on a scale, they welcomed the chance to write a common sense paragraph illustrating a student's quality. In industry and in education the responses from persons requested to rate or to describe individuals with whom they have been associated have been of special value when directed to a specific end. Our experience supports the demand of Dr. Darrach for an evaluation of a man "on the basis of what one thinks he is going to do as a doctor." We of the schools and colleges do not know what a physician does. We may make the mistake of observing irrelevant actions unless the physicians themselves advise us.

The situation is just what it is in the rest of the world's work. When this has been analyzed and the skills and qualities required for particular positions have been specified, the schools and colleges can shape their curriculums and methods of instruction to attain

more quickly the objectives of education as they pertain to the professions and to other vocations. Already the American Council on Education has been able in cooperation with certain industries to secure descriptions of several thousand positions which college men and women are called on to fill. The state department has just completed such a description of the work of the foreign service officer. Other departments of the government are formulating their records of usage, finding the experience of use within the department as well as helpful to the colleges in understanding the needs of the department. A single individual makes a record of performance describing all the activities pertaining to a particular job or position. Then the records of performance of several individuals who did the same job are cumulated in what is called a "job specification." Finally a composite of the job specifications of a group of similar jobs in a variety of organizations gives us what is called a record of usage. Some may have seen the book by Prof. W. W. Charters, in which, behind a forbidding title, "Basic Materials for a Pharmaceutical Curriculum," he has analyzed a field of importance to medicine. It is the hope of some of us that such a record will arise out of the valuable studies being made by the Commission on Medical Education. When medicine has furnished the colleges with such a record of usage it will be possible to provide a curriculum more directly effective in training men and women for the medical profession and in helping to choose them wisely.

A description of the profession of medicine based on such a study, placed in the hands of gifted students at the time when rich corporations are tempting them from medicine and research, will in itself help to enlist the right kind of student. Vocational guidance in the colleges is just beginning. The first of the American Council on Education Vocational Monograph Series was devoted to medicine and was prepared at the University of Michigan under the supervision of Dr. C. S. Yoakum of the Committee on Personnel Methods.[8] The monograph can be greatly improved when medical men afford us the records of usage which will enable a college man who is considering a profession to know just what a modern physician does and is.

The general public needs this guidance too, for at some time in his life the man in the street wants to call a physician. At the corner drug store the pharmacist tells him to see a physician. His insurance companies advise him to consult his physician. The public health service directs the sick to call in a physician. The editor of THE JOURNAL writing in the *New Republic* says: "The person who is sick should go to bed immediately and should have the attention of a competent physician." But how is the man in the street to know who is a competent physician?

When the British Medical Council of Medical Education and Registration was established in 1858, it undertook to "enable persons requiring medical aid to distinguish qualified from unqualified practitioners." In this country the American Medical Association has had the admiration and some cooperation of the rest of the educational world in establishing standards for medical schools and vigorously combating the activities of inadequate and fraudulent schools. The reduction in the number of schools from 162 in 1907 to eighty in 1927 is a remarkable achievement. In 1927 it was reported that 94.1 per cent of the 4,035 graduates in medicine were from class A schools. Only twenty-two years ago, 5.9 per cent of the graduates were from class A schools. That looks like progress. The American mortality tables, however, would indicate that a great many of the men who made up the 94.1 per cent of medical graduates of 1905 are still alive and presumably they still have at their doors brass plates with the names followed by M.D. How is the ailing man in the street to know from this brass plate or a list in the telephone book which physician to call. "Today with us," says the editor[9] of the *Lancet* in his interesting review of his American visit, speaking of England, "a doctor is a doctor and, save where the possession of an honors qualification is needed for the holding of an appointment, the particular affixes to a name in the Register have no significance." The American citizen has no register to consult. Moreover, he has knowledge that a large number of physicians received their degrees from schools which do not or did not have the approval of the American Medical Association. Can he be sure that "S. Sprigge, M.D." is a reliable physician? Would he have more confidence in "Sir Squire Sprigge, M.D. Cantab., F.R.C.P. Lond., F.R.C.S. Eng., editor of the *Lancet*"? Why should not the man in search of a physician have such information as Sir Squire himself puts at the head of his article for the information of readers of the *Lancet*? In a famous campaign for pure food and drugs it was a physician said "Tell the truth on the label and let the consumer judge for himself." Will he choose "M.D. (Oriental)" or "M.D. (Johns Hopkins)"? President Eliot of Harvard once declared it to be a purpose of education to enable a person to know a good man when he saw one. Persons thus educated, in school and in college, would know a good physician when they saw one and would certainly call a competent physician when they needed one.

Without losing the advantages of specialization I hope that each division of education will afford every other one the advantage of its experiences and that each will welcome—as the Council on Medical Education and Hospitals has always welcomed—the cooperation of other educational units. It is my belief that measuring achievements rather than time will enable us to select men and women more wisely and also organize our educational divisions so flexibly that the gifted student may proceed more quickly through his formal education; and it is my hope that the new efforts to measure personality will lead to effective character education and that descriptions of personality will aid in the choice of the best men and women for the service of mankind in the ministry, the administration of justice, and the healing of the sick and maintenance of health. I am sure that the schools and colleges can more effectively cooperate with the medical profession in these ways if the profession will teach them what a physician does and is in the terms of the day and in the experience of the leaders of medicine in our country. Specialization and cooperation is my plea. Again I quote the distinguished editor of the *Lancet:* "On both sides of the Atlantic a simple chant may be heard to the effect that 'the more we get together the happier we shall be.'" That goes for all divisions of education on each side of the Atlantic, as well as for medicine and the other divisions on both sides.

8. Hortense, Hoad: The Profession of Medicine, American Council on Educational Vocational Monograph, series number 1, August, 1928. This monograph may be secured from the University of Michigan or from the American Council on Education.

9. Sprigge, Squire: Medical Education in the United States and Canada, Lancet, Jan. 5, 1929; special supplement, p. 37.

THE TEACHING OF MEDICINE*

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Every one is, to a greater or lesser extent, to borrow the title of de Musset's masterpiece, a child of his century. The adult of today and of tomorrow is largely the creature of his education.

Adolph von Kussmaul, who has given us one of the most interesting and fascinating medical autobiographies ever written, in the introduction to his "Jugenderinnerungen eines alten Artzes" expresses his thankfulness that a kind Providence permitted him to live in the greatest of all centuries—the nineteenth. He describes with enthusiasm the achievements of his century, the development of steam railways, the extension of transatlantic travel, the birth of the new science of bacteriology, the discovery of anesthesia, the application of asepsis and antisepsis in surgery and the discovery of the x-rays. The nineteenth was indeed a great century and we of the twentieth pay respectful homage to its great achievements; we recall with grateful admiration the figures of the great men who walked across its pages and whose legatees we have the good fortune to be. We should all like to have with us now the genial old Kussmaul, to see his eyes sparkle and his cheeks glow as we tell him how an airship recently sailed from his country across the Atlantic to New York, how symphony concerts in Pittsburgh are now heard in London, and, in his own domain of work, to show him how we diagnose syphilis with a Wassermann reaction, describe to him some of the biochemistry used daily in every hospital in the diagnosis of disease and finally show him a case of diabetic air-hunger which he studied so minutely and carefully but was unable to check, but which we can abolish by the use of insulin.

Many protests are constantly made against our educational system as giving undue prominence to science as compared with subjects generally considered as cultural. Possibly these protests are justified, but any fair-minded critic will admit, I think, that excessive devotion to athletics or social life in our universities has interfered more with scholarship than excessive devotion to the chemical or physical laboratories.

More serious criticism can, I believe, be directed toward an undoubted tendency in our educational life to find every short cut possible and to take the path of least resistance on every occasion. Short cuts are often desirable and necessary. An adding machine will add up a column of figures quicker and more accurately than most men can, but there is no mechanical contrivance that will take the place of intellectual decisions.

At the risk of being considered a fossil, a standpatter or a fundamentalist, I still adhere to the ancient dogma that a physician should be not only a doctor but an educated man, and I believe that the standing of the profession will suffer if we turn out a lot of doctors who have galloped through the college and medical course with the result that they think John Ruskin is only a brand of cigars and Jupiter the name of a washing machine. The degree of M.D. should indicate a certain educational and intellectual status. It means that the possessor of this degree has slowly and often painfully trudged up the difficult and winding path of knowledge until he has reached a certain summit—not that he has taken the funicular and arrived there in half an hour. I still hold with Osler that medicine is a jealous and often hard mistress and that the master word in medicine is work.

As a representative of one of the smaller and lesser units in the truly astounding system of medical education that has developed in this country during the past twenty years, I would have too much modesty, even if I lacked the sense, to attempt to say how medicine should be taught. I can only describe the methods we follow or attempt to follow and some of the theories of teaching that have guided our efforts. Many interesting related problems, such as the relation of students to research work, will not be discussed, since these problems in themselves are of sufficient complexity to form the subject of a paper.

We do not attempt to show a student examples of every disease described in Osler's textbook, nor do we try to give him the conception that when he has his degree of doctor of medicine he is like Stephen Leacock says he was when he received the degree of doctor of philosophy. It may be recalled that Leacock said: "The meaning of this degree is that the recipient of instruction is examined for the last time in his life and is pronounced completely full. After this no new ideas can be imparted to him."

We try above all other things to teach the student the technic of taking a history, making a physical examination, carrying out the simpler laboratory tests and then, after these details have been mastered, of proceeding to the diagnosis and treatment of the patient. We stress that the physician should first know the symptoms manifested by a patient even if the diagnosis is not apparent, for once he is sure of his observations he can, by reference to his books, usually make a correct diagnosis even when the disease is one of which he has not even heard.

Another view which I entertain is that medicine is not learned by diligent cramming of details over the midnight oil but by what one might term the "episodic method"—the teaching of medicine as a series of episodes, at first perhaps unrelated, but later assuming the appearance of a connected story, or a well rounded experience as the episodes multiply.

Many persons I am sure have had an experience similar to mine in the study of foreign languages. They start out first in German, for instance, with an intensive study of the declensions, the conjugations and the genders and, after several years' study, imagine they know the language, sail to Germany, and begin to try their German on the natives. Many may recall their initial experiences: how they tried to think out the gender, the case, the declension, the form of the verb, with the result that while they might be talking German they were still thinking in English and every minute spent in speaking was preceded by about five minutes in thinking, with the result that the German was decidedly halting.

Then one day the method was changed entirely and they began learning sentences, articles, nouns, genders, tenses, all at one time. They looked at a book and instead of thinking "this book is interesting, let's see, 'this book' is in German 'dieses Buch,'" they remembered how a colleague had picked up a book from the table and said "dieses Buch ist interessant," and they recalled this remark in the original words. They were beginning to think in German and as the sentences multiplied, their vocabulary increased and their speech became more fluent.

* From the University of Kansas School of Medicine.
* Read before the Annual Congress on Medical Education, Medical Licensure and Hospitals, Chicago, Feb. 18, 1929.

I believe many of us in our school days have had, more or less unconsciously, similar experiences in studying medicine. When a student sees a patient in the clinic, studies him carefully and masters the details, it is perhaps a single isolated episode like the single complete and correct sentence in German. But as these episodes increase in number his knowledge of medicine grows just as his German improves with the acquisition of new sentences. And the student begins to think medically, just as the student of languages begins to think in a foreign language.

This analogy could be carried even further. The student of language can benefit greatly by constant reference to his grammar and dictionary, and the medical student, if he has any intellectual curiosity, is sure to read up in detail at night about the disease he has seen in the clinic during the day.

The proper place of the clinical laboratory in the clinic and in the student's curriculum is a question concerning which one can always start an argument. It has been a popular practice in certain circles to throw stones, or perhaps I should say to heave bricks, at the laboratory. Much of this criticism comes from men who have had little laboratory experience and look on the laboratory as many laymen regard the x-rays, thinking they are a sort of magical eye that the roentgenologist puts on to enable him to see all the disorders of their insides and almost to penetrate their innermost thoughts.

A clinician of my acquaintance once complained to me that he had found the dextrose tolerance test of no value because in his diabetic patients it gave him no information as to the insulin dosage he should employ. The same week I saw a physician who found out from this test that he was suffering from a renal glycosuria and gave up the diabetic diet he had been following for ten years.

A surgeon complained to me that the basal metabolic test did not always tell him whether his patients would survive a thyroidectomy. I answered that the basal metabolic test did only one thing. It told him what the patient's metabolic rate was and did not give any information regarding the patient's blood pressure, the condition of his myocardium or the state of his kidneys.

Such examples and such criticism could be multiplied ad infinitum. They always remind me of the classic remark of Sir Joshua Reynolds who, when asked what he mixed his paints with, answered, "with sense."

I had the good fortune to spend several years in the laboratory. One of the most valuable lessons I learned was not what the laboratory can do but what it cannot do. This lesson I try to pass on to our students. They are told that the laboratory data form only a link in the chain of evidence one is forging, sometimes a powerful link, sometimes a weak one. We try to teach our students that it is usually the composite picture that determines the diagnosis and not a single detail of the picture either in physical observations or in laboratory data.

There is no doubt that medical students, like many physicians, attach undue importance to the laboratory. It all seems to the novice so exact, so mathematically precise, when compared with the more vague clinical impressions, although the careful laboratory worker realizes better than any one else its limitations and pitfalls. These limitations we stress continually to our students, not because of hostility but because of love and respect for the laboratory and our desire to have it fairly judged and not considered as the source of infallible pronouncements.

Our instructors in medicine consist of two groups, a smaller group who devote half or more of their entire time to the instruction of students, carrying on the details of administration and the investigation of medical problems, and a larger group who devote most of their time to the problems of their own practice and who spend from three to six hours weekly in the instruction of students in the hospital and outpatient department. The services of these men are practically free and our school feels grateful to this group, who are a source of real inspiration to us all and who give so much sound, practical instruction to our students. These are men who are on the firing line of medicine, where most of our students will shortly be, and they bring to the students the problems they will daily face, in a way, I believe, that no full-time man can bring. We are not troubled by what some have dubbed the "limousine instructor," who drives up in state, lectures to the students for an hour about the important personages he has treated and then closes with a remark about some oil millionaire he is on his way to see, dashes out and leaves the impressed students to watch him roll away in his limousine. None of our instructors, so far as I know, boast of either a limousine or a chauffeur; they spend hours with the students, working on the clinical problems of the hospital and outpatient department, and are among the hardest working men of our entire organization.

Clinical instruction in our school begins with physical diagnosis in the second half of the sophomore year. This work is carried on in the dispensary, the classes being divided into groups of from eight to ten, each group being under an instructor. Here we attempt to teach them first normal physical diagnosis and later physical diagnosis in disease. This work continues for one semester, and normal physical diagnosis is most stressed.

The work of our junior year calls, of course, for more instruction in medicine. The fundamental courses of this year are physical diagnosis and clinical microscopy. We point out to our students that this is the golden time to learn how to diagnose disease by the methods of physical and microscopic diagnosis and that all else is subservient to these two important factors. We try to have them live in the wards and dispensary and not "waste the hours of daylight in listening to that which they can read by night." There are no didactic lectures during the hours patients are in the medical dispensary.

The junior class, meeting four mornings in the week, is divided into groups of five and six which rotate weekly. One group goes to the surgical dispensary, one group to the roentgenographic department and one group to the medical wards of the hospital, and the remaining five or six groups work in the medical dispensary. From 12 to 1 o'clock on Monday there is a junior medical clinic; on Tuesdays, Fridays and Saturdays the juniors attend a medical clinic primarily for the seniors. Two mornings in the week, during the first semester, the students work in the laboratory of clinical microscopy.

We emphasize that physical diagnosis is learned only by practice, or what has been termed a "continual hammering away at patients." In our experience the hammering process is best carried out in the dispensary, where most patients are not so ill and where the watchful oversight of eight or ten instructors does not cause any inconvenience or comment. For this reason and because of our insistence that the student must learn

physical diagnosis in his junior year, we prefer the dispensary for this instruction and not the hospital wards.

In our senior year the students are divided into three groups which rotate during the year, one group acting as clinical clerks to the medical patients. The student takes the patient's history, makes the first blood and urine examinations, examines the patient with the intern, and acts as family physician to the patient. Each student during the period in which he serves as medical clerk has under his charge from ten to fifteen patients. Three days a week he attends a senior clinic from 12 to 1 o'clock where his own patient may be presented, and twice a week ward rounds are held. In addition to this he spends two mornings a week at a large charity hospital affiliated with the medical school, where he works in the medical wards and attends a medical clinic.

One of the groups spends a morning each week in the contagious disease wards of a nearby hospital, where they have an opportunity of studying patients with measles, scarlet fever, smallpox and other contagious diseases that may be admitted.

Throughout the school year each student spends two weeks in one of the large state hospitals, where he lives as an intern and receives practical instruction in nervous and mental diseases. This plan, we feel, has been of great value, particularly as the heads of these institutions are unusually gifted and enthusiastic teachers.

The senior students spend the greater part of their afternoons in the dispensary in the neurologic, dermatologic, urologic, gynecologic and obstetric clinics, these clinics being held in the afternoon. Two afternoons in the week they work in groups of six in the special treatment clinic, which is conducted jointly by the department of medicine and the department of pharmacology. The patients are referred from the various outpatient departments to this clinic for intravenous, intramuscular and subcutaneous injections of various kinds. Here the students, for example, administer arsphenamine under the guidance of an internist and a pharmacologist. The experience obtained by the student in this clinic is, we believe, very valuable.

While we stress clinical instruction in medicine, if necessary, to the partial curtailment of didactic courses, we believe the latter have a limited but definite place in the medical curriculum. Senior students have two hours of recitation a week in medicine, where the attempt is made to impress more firmly on the student the clinical pictures he has seen and so bridge the gaps in his knowledge by a discussion of those diseases which he has not encountered in the clinic. A similar one-hour course in recitations in physical diagnosis is held weekly throughout the junior year.

The question of the proper textbooks in medicine is a constantly recurring one, and to both student and teacher a very complex and often perplexing problem. Socrates, it may be recalled, once remarked to Euthydemus: "Of course, you, who have so many books, are going in for being a doctor. There are so many books on medicine you know." And this remark was made nearly a thousand years before the discovery of the printing press! So what the Germans term "Vielschreiberei" seems to have been an age-old addiction of the medical profession.

I have always been fond of quoting Osler's advice to students, that "to study medicine without books is to sail an uncharted sea while to study medicine only from books is not to go to sea at all."

We emphasize to students that medical books are to be used as reference works and not as repositories of medical dogma which must be memorized and defended like the catechism. I do not mean that the student is given the impression that what the medical profession has learned from the experience of centuries is of no concern to him. But an effort is made to show that the clinical picture of a certain patient is the thing to fasten first in one's mind, and then one's knowledge may be extended by reading the composite picture of this disease presented in the textbook and noting wherein the condition of this particular patient resembles the usual picture and wherein it differs. Many students of medicine in my experience have a tendency to think of a disease as pages so-and-so of a certain textbook and then try to fit this frame over the next patient they suspect of having the disease.

Students are urged and often required to report to the class the original description of some clinical disease, such as Addison's account of pernicious anemia or Parkinson's description of the shaking palsy. I believe such long tried methods have more than a purely cultural value to students. Many former students have told me that they always felt that they had a better acquaintance with a disease and a particular interest in it after reading a master's original description of that disease.

Our students are encouraged to read good medical biographies. I believe that any one's knowledge of heart disease is greatly increased by reading Wilson's biography of Sir James MacKenzie. A student only recently told me that cardiac arrhythmias had been a confused and perplexing puzzle to him before he read this book. After reading this book, quite as interesting as any novel, he added the whole account of MacKenzie's perplexities unconsciously called to his mind his own difficulties in this subject, and when he read how MacKenzie solved them he felt like cheering because MacKenzie solved his own problems at the same time.

This historical method has, to my mind, a great teaching value. When the complex organization of our public life, for example, is described to a foreigner it is all baffling unless he understands how it evolved from the comparatively simple government of the original thirteen states. The various complexities of cardiac diagnosis are much simpler to the student if he has some inkling of the problems that have arisen in the life history of these diseases and of the solutions that have been proposed.

The teaching of therapeutics in our medical schools is a favorite target for criticism, particularly on the part of students. I recall many of my own sophomoric-like remarks while a student about the instructors spending fifty-nine minutes telling us how to diagnose a disease and one minute telling us how to treat it. As I grow older, I am less disturbed by this criticism, particularly since a year's internship is now generally recognized as an integral part of a student's medical education. Our students are better versed in diagnosis when they graduate than in treatment because they have had more practical contact with diagnosis and more responsibility for the diagnosis. When they become interns and the responsibility for the treatment falls on them, then their real education in therapeutics begins.

I do not mean that we do not have any courses in therapeutics—we give two hours a week in the senior year—or that a patient is ever presented without the treatment being discussed. But I do not believe the discussion of the treatment makes the same impression on

the student as does the diagnosis, for the responsibility of the diagnosis rests heavily on the clinical clerk, while the treatment of the patient is the particular responsibility of the intern.

One lesson, however, we try to impress on the student: that the patient consults him because of pain or discomfort, and that if a cardiac patient is seen in the late afternoon it is more important at that time to give the patient a comfortable night's sleep than to learn whether he has a mitral stenosis or an aortic insufficiency.

I realize that this discussion of teaching in medicine does not bear the imprint of undeniable genius; that it does not present any radical departures in teaching, and that it has, perhaps, an old-fashioned, almost mid-Victorian flavor. We try to instil in the student a scientific curiosity regarding disease; we try to teach him the technic of satisfying that mental curiosity, and therapeutically we recall to him the advice of Sir William Stokes to a young physician, "Charley, don't do too much."

Nor is this all. We try to teach our students that medicine is a profession with a high ideal, regardless of the shortcomings of some of its disciples, and that its practice is a rare privilege and a sacred trust.

THE RELATIONSHIP OF MEDICAL EDUCATION TO THE COST OF MEDICAL CARE *

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The medical profession of America has made medical education one of its chief interests during the past quarter of a century. In the twenty-five years ahead, it is inevitable that the adequate and economical distribution of medical service to all elements of the population, on some basis yet to be determined, will be the outstanding subject of attention.

The injection of the laboratory into the medical school and hospital revamped our conceptions of medical education. The discoveries and inventions in the laboratories and factories and their practical application to daily life have built a new civilization which has remade the conditions surrounding all medical practice. There has been a marked change in the content of the medical course, in the methods of teaching, in the function of hospitals and in the daily life of the physician, but no change in the effects of disease organisms on the human body or in the psychologic relationships between the physician and the patient.

The simplicity, as well as the inadequacy, of the medical training given a generation ago corresponded to a simpler civilization and to a simpler economic organization. In medical education we were well behind the schools of Europe, and the aim of the ambitious medical student was to round off his training in a foreign clinic. When the attention of the medical profession in the United States was attracted to the deplorable educational conditions in some of our medical schools, and when wealth became available to cover the necessary expense, the universities absorbed many of the medical schools, professionalized them, and introduced the laboratory worker and the research worker to cooperate with the clinician. Then that rapid expansion of the medical curriculum and that growth in medical plants which has taken place in many parts of the country began to dominate the picture. Whenever a program is erected on abuses of the past it is apt to be intemperate and exaggerated. In the endeavor to correct weaknesses, new methods not applicable to clinical training were introduced with vigor and a large financial backing, and some distortion of the whole scheme of medical education took place.

We have now reached the point where we can look ahead with more experience to guide us. The recent report of the Commission on Medical Education shows that there is less inclination to be pedantic as to methods of teaching, or as to the content of the medical course or the preliminary training therefor. It is clear that we must require of the medical student a sound basic education in certain directions and a period of training in close association with the patient. The old lecture system, which was cheap from the standpoint of salaries and costly from the standpoint of results, has been replaced by methods requiring the medical student to do much of his own work under guidance. The so-called full-time medical teacher has now become an academic professor with the privileges and freedom of that position as well as the responsibilities and opportunities.

As at present organized, medical education is costly in time and in money to the student, to the teaching institution, and consequently to the public. Only a nation with large economic margins can set aside the amount of time for study that is required for such a profession. Fortunately our civilization has large margins, so that this is possible in the United States at the present time. There is no need, though, to go beyond the reasonable requirements, since the final charge falls on the sick and their associates. The teaching of medicine since it started forward has been based from the very beginning on the junior college, or the first two years of so-called college work. This is sound pedagogy and in line with experience in all parts of the world. The requirements of the medical school are too specific for these two years; but that such a period of training is desirable and not unduly expensive under present conditions seems to be evident. With that work completed, there is no valid reason why the medical course leading up to the hospital experience should require longer than three calendar years. There is certainly no adequate reason for the long summer vacation period. In medicine, as elsewhere, we are the prey of traditions. Having once conceived of medical education as based on a four-year program, we have permitted this conception to become embalmed in the law as well as in our own thinking. "Tradition" is the name given to the processes by which one generation protects its product—good or bad—from change by those who are to follow. This modern application of the tabu formula of the savage is one of the most effective methods yet discovered of inhibiting change and of controlling human action. It is based on the emotions, not on the intellect. If some one with wide training in the field of glandular therapy could provide us with an antitradition hormone we might, at least in the field of medicine, move forward with less chatter about "the three R's," "the good old days" and "the four year course."

Following this three-year period, medical education now requires intimate association with the hospital in the form of an internship or something similar, and close supervision of students actually carrying on the functions of physicians.

* Read before the Annual Congress on Medical Education, Medical Licensure and Hospitals, Chicago, Feb. 18, 1929.

Just at present there is developing an exuberance in some plans for buildings for medical instruction leading up to the degree of doctor of medicine. In one of our great cities the plan is now going forward for the construction of a plant at an approximate cost of $55,000,000, with the primary aim of undergraduate instruction of medical students. With a striking absence of facilities for the profession to obtain real opportunities for so-called postgraduate training, it seems absurd to aggregate such large sums of money in metropolitan centers for undergraduate medical instruction. No such sums are actually required to give the training necessary. There is no great advantage to the medical student in being in a large, elaborate, highly organized plant. Small classes are requisite for modern medical training. Simple conditions in which the patient, teacher and student can have daily and intimate contact need not be excessively expensive.

It is evident, then, as we look at medical education that there has been an elaboration of plant, a marked increase in expense, an increase in the amount of time required for training, and a general set-up that starts the young physician off comparatively late in life after a large expenditure of time and money. Since the only capital which a physician has is in himself, and the only possession he has is his time, and since life is limited, it is important that a proper scheme be evolved so that medical education may not put too great a cost on the sick. We do not want cheap medical education or cheap men; but we do need to demand all the economies that are reasonable and possible during the period of medical training if we are to solve the coming problem of the distribution of medical service at a reasonable cost to the public.

In considering the cost of medical care we must start with the heavy investment of time and human energy which is represented in the physician himself. In past years, while the young physician might have had some difficulty in starting in practice, it was always possible in a rapidly growing country for him to find a location in outlying or frontier places and soon build himself into the life of the community. Now, the young physician is usually not in a position to provide for himself, let alone for a family, until he is from 26 to 30 years of age. If he finds a ready method of making a living it is usually because he becomes connected with a hospital, clinic, insurance company or industrial concern, or attains some official position in public health work.

Whatever his position may be, it is inevitable that a large measure of public service, or disservice, is associated with all of his various acts in the care of the sick. Failure on his part to recognize disease may be costly in life and in the funds of the whole community. While he will be serving an individual, he cannot escape a certain responsibility to the public. That he should be well trained and properly placed is of importance to society. Any one who tries to chart the course of a young physician going into our present economic system cannot help but be impressed with its poor organization from an economic standpoint. It is just as clear that while this lack of organization may make it difficult for the young physician, it makes it doubly difficult for the patient unless he happens to be so fortunately situated as to be empty of pocket or rich.

This is not the place to discuss just what should be done in connection with the development of plans for a better distribution of the cost of medical care. It is clear that medical practice is far behind the plans that have been developed in industry and in many other forms of public service. It will require the most searching study of the facts and the application of these facts in the true spirit of the experimenter if we are to develop conditions that will make it possible for physicians to meet their own problems and for a single illness not to become a prolonged handicap to an individual or to a family. Perhaps there is need in medical education for the training of physicians in the field of economics and social organization. While it is true that the physician belongs to a profession with a long history of service for any one in physical need, it is likewise true that training in the social sciences has not been the strong point of the medical student or of the medical school. In fact, the physical and biologic sciences have taken such a predominant place in the curriculum and in our thinking that it has been difficult to find time for courses for the training of physicians in handling even their simple business affairs.

It is true that a large percentage of physicians have such a keen interest in their professional work that they are not classified as good business men. One of the best attributes of the physician is such absorption in his work that other interests become of secondary importance. A physician normally is a strong individualist. His greatest satisfactions come not in things done for a group but for single individuals where he can check his own results. These admirable qualities interfere with his capacity to merge his interests with the group. While there has grown up an increasing number of partnerships and clinics in which group practice has developed, these have come about through the action of certain individuals and under local conditions, rather than through any concerted attempt on the part of the profession to solve its many problems.

Perhaps the medical school is not ready yet to insist on a training in economics, government, political science and history, and the relations of medicine thereto; but unless such training and such thinking are soon started the present chaos in medical practice will inevitably make for high charges on the sick and an inadequate return to the physician. The saddest thing that could happen would be an increase in the incompetent, poorly trained, and often sinister individuals who now treat a certain percentage of those who are ill. The medical profession must stand for adequate preparation and sound training; but it need not demand abnormal expenditures of time and money to provide elaborate specialized training in all of the fields of medicine for the candidate for the degree of doctor of medicine.

It is requisite, though, to view as part of the reasonable expense of the cost of medical care the provision of buildings, hospitals, equipment and personnel, where physicians may go regularly throughout their active medical careers for further training. To this must be added also the expenses of the physician for such studies and the loss of time involved. Medicine moves forward with such rapid strides that constant study throughout the years is essential. If a physician should stop reading all medical literature for three years, he would not understand one third of the articles published in the current medical magazines. A study is being made of the expenditures of capital and time in the training of a physician. When to this is added the necessary expenditures for medical meetings and further study during the years of active practice, a better approach to a knowledge of the legitimate financial rewards of the physician should be available.

Simplification of the curriculum, reduction in the number of calendar years, increase in the hospital

opportunities, the adoption of relationships of hospital to medical practice so that the young physician may receive a salary and yet be connected with hospitals and clinics for further training, will all help to make him more effective and of ultimate benefit to the public.

Medicine has gone a long way forward in increasing human comfort and happiness. It is now far beyond the point at which the individual alone profits from it. The physician must now set up the sign posts for the advance of much of society. Man is human and fallible and subject to disease. All that he possesses is a brief span of life which may be suddenly cut short in a hundred ways, or made painful and inadequate by ill health. The properly trained physician can do more for him than any other factor in our organized community life; but he cannot do for him as he should unless there is a mutual advantage both to the physician and to the patient, and unless both are able to prosper, one seeing the other through his adversity. Since the man of medicine must largely derive his living from patients who are temporarily out of employment, he must depend on savings for his livelihood.

I have confidence that with the study which is now going on through the Committee on the Cost of Medical Care, the profession will soon respond in the field of economics to new methods in the same prompt way in which it has always responded to the application of new inventions and new discoveries in the day by day care of the sick.

MENINGOCOCCUS ENDOCARDITIS*

C. M. HYLAND, M.D.
LOS ANGELES

That the meningococcus may be responsible for extrameningeal lesions and that these lesions need not necessarily be associated with infection of the meninges has been known for some years.

Probably the first case recorded in which this organism was demonstrated as the cause of endocarditis was reported by Warfield and Walker[1] in 1903. A negro, aged 32, was admitted to the hospital in a delirious condition, having been ill for a period of two weeks with headaches, chills, fever and delirium. The patient had an herpetic eruption of the lips, a systolic murmer at the apex, irregular heart action, with 11,000 leukocytes, and a temperature of 103 F. During his hospital stay, the patient continued to have chills and a septic temperature. The course continued progressively downward and he died one month after admission. Autopsy showed an acute ulcerative endocarditis, mitral stenosis, infarcts in the spleen and kidneys, and chronic diffuse nephritis. The acute endocardial lesions were extensive on the mitral valve and were described as pale gray and red, the largest mass measuring 2.5 cm. at its base and projecting 3 cm. into the cavity of the heart. Those on the aortic valve were the size of a pinhead. Cultures from the vegetations showed a meningococcus. The patient did not present symptoms of meningitis at any time.

Cecil and Soper[2] report the case of a man aged 31, complaining of headache, pain in the left arm and chest, and fever, admitted to the hospital, after being ill two weeks, with a temperature of 102.5 F.; pulse, 100, and respirations, 32. During the course of his illness the patient's temperature ranged from 102 to 106 F. A blood culture taken the day after admission was sterile; two subsequent blood cultures showed the meningococcus. The patient died eleven days after admission, and autopsy showed the heart enlarged, with a soft cauliflower vegetation 1.5 cm. in diameter on the anterior leaflet of the mitral valve, and with infarcts in the spleen and the right kidney. Examination of the brain and the meninges did not show meningitis.

REPORT OF CASE

J. S., a man, aged 46, admitted to the hospital, Jan. 4, 1927, in the service of Dr. C. J. Burns, complained chiefly of shortness of breath, excessive perspiration and cough. The family history was negative. The patient stated that he had always enjoyed good health, having had the usual diseases of childhood and the only surgery being an uncomplicated appendectomy in 1910. There was no history of rheumatism. The present illness was of ten days' duration, the patient being forced to bed with shortness of breath, severe cough, excessive perspiration and headache. There was no record of medical attention prior to admission to the hospital.

Examination on admission showed the temperature to be 103; pulse, 118; respirations, 35. The patient was extremely dyspneic. Heart examination showed the point of maximum impulse in the sixth interspace 3 cm. to the left of the midclavicular line with forcible pulsations in the neck. There was a diastolic murmer heard best at the aortic area. Moisture was present at the bases of both lungs. There was edema of the extremities, and neurologic examination was negative. The blood pressure was: systolic, 102; diastolic, 10; the blood count: hemoglobin, 50 per cent; erythrocytes, 2,540,000; leukocytes, 22,500; differential: polymorphonuclears, 87 per cent; small lymphocytes, 10 per cent; large lymphocytes, 3 per cent. The specific gravity of the urine was 1.021; tests for albumin, sugar and casts were negative. There were many pus cells but few red blood cells. The Wassermann reaction was 3 plus.

The patient perspired profusely most of the time and the pulse ranged from 90 to 120 throughout the course of the illness, which became progressively worse, terminating in death, Jan. 18, 1927.

Blood cultures were taken on dextrose broth, January 7 and 17.

An autopsy, performed ten hours after death, showed three pea sized masses, attached to the free margins of the aortic leaflets, two being attached to the anterior leaflet and one to the right posterior leaflet. These masses were bright red and very friable; each was attached by a small pedicle. Microscopically they were composed of fibrin, showing necrosis in many areas. There were large numbers of pus cells, generally distributed throughout the vegetations. There was a wedge shaped infarct in the spleen 1.5 cm. in its greatest diameter, and the organ showed definite hyperplasia. No other observations had definite bearing on the condition. Permission to examine the brain was not obtained, but at no time during the illness were there any symptoms of meningitis. Cultures were not made, as the body was embalmed.

January 22, after death, the blood culture collected January 17 became cloudy and transplants showed a gram negative diplococcus. Stained sediment from the bottom of the flask showed a gram negative diplococcus occurring in large numbers in the white cells.

As the first culture taken January 7 had remained clear, sediment of this was stained and showed large numbers of an apparently identical diplococcus within the white cells.

The organism recovered was transplanted daily on blood agar and after many transplants it was cultivated with ease on dextrose agar slants. Agglutination tests proved this to be an irregular parameningococcus agglutinating with specific serums in a dilution of 1:800.

Children's Hospital.

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* From the pathologic laboratories of Mount Carmel Hospital.

1. Warfield and Walker: Bull. Ayer Clin. Lab. **1-3**:81, 1903-1906.
2. Cecil, R. L., and Soper, W. B.: Meningococcus Endocarditis, with Septicemia: Its Bearing on the Mode of Infection in Epidemic Cerebrospinal Meningitis, Arch. Int. Med. **8**:1 (July) 1911.

Amebic Dysentery in Haiti.—Caucasians residing in Haiti are apt to become infected with *Endameba histolytica* . . . unless they strictly observe the avoidance of uncooked vegetables and fruit as well as unboiled drinking water.—L. H. Williams.

DIURESIS FROM WATER-SOLUBLE BISMUTH

BISMUTH SODIUM TARTRATE IN SUBJECTS WITH AND WITHOUT EDEMA *

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A. L. BLOOMFIELD, M.D.
A. B. STOCKTON, M.D.
AND
D. A. WOOD, A.B.
SAN FRANCISCO

The diuretic action of the bismuth ion injected in the form of insoluble compounds, or of soluble compounds in oil, is prompt and definite, though fleeting, the duration of action being usually not more than twenty-four hours.[1] A sustained diuretic action fails to occur despite the considerable deposits of bismuth which persist over long periods (months). So far as diuresis is concerned, therefore, most of the bismuth stored in the body would appear to be superfluous. A sustained diuretic action is much desired in conditions accompanied by anasarca or edema requiring the use of diuretics. Such action might occur with suitable, water-soluble compounds of bismuth, owing to more rapid diffusion and absorption of bismuth, and to absence of encapsulation. The excretion also might be completed sooner, thereby avoiding unnecessary actions of the bismuth on the body. With these objects in view we have tried the water-soluble bismuth sodium tartrate recently accepted by the Council on Pharmacy and Chemistry of the American Medical Association. The results obtained in two convalescent subjects without, and in three patients with, anasarca and edema under controlled conditions are definite and sufficiently convincing to warrant a report.

BISMUTH SODIUM TARTRATE

Bismuth sodium tartrate has been studied along several lines during the last forty-two years, but no one has considered a possible diuretic action of the compound. It was first studied pharmacologically by Steinfeld [2] under the direction of H. H. Meyer, in 1886. Since then, it has been studied in extenso, including its therapeutic action in experimental syphilis, by Masson,[3] who reviewed the literature to 1926. We are not concerned here with its use in syphilis.

Injected intravenously the compound is definitely toxic, the main action being exerted on the circulation and resulting in collapse through injurious effects on the heart. This is of importance in case of accidental vein injection in connection with its use intramuscularly. According to Masson, the fatal dose in cats is about 4.45 mg. (bismuth metal) per kilogram, or about ten times the minimum effective dose for the circulation. Intramuscularly, however, this compound and other tartrates of bismuth possess a relatively low toxicity. In rabbits and rats, the maximum tolerated doses of potassium bismuth tartrate and sodium and potassium tartrate range from 0.1 to 0.15 Gm. per kilogram (Leonard and O'Brien [4] and Raiziss and Severac [5]). It should be borne in mind, however, that the tartrates of bismuth used by different investigators and those on the market vary considerably in composition and also in content of bismuth. This appears to be true of the bismuth sodium tartrate. For instance, the bismuth sodium tartrate used by Masson [3] contained 44.5 per cent of bismuth, while that accepted for New and Nonofficial Remedies, and used by us, contains 73.8 per cent. According to Kober,[6] the tolerated dose of the latter compound injected intramuscularly in rats is somewhat more than 0.6 Gm. per kilogram; and intravenously, up to about 0.025 Gm. per kilogram. Rats, however, are known to tolerate higher doses of drugs than other species, so that this bismuth sodium tratrate, with its higher bismuth content, might be more active and also more toxic in other species than those tartrates with a lower bismuth content. Nevertheless, the margin of safety appears considerable, even if the tolerated dosage is no greater than that of the weaker tartrates; moreover, the recommended dosage for use in man is small; namely, 0.03 Gm. In agreement with the apparent relatively low toxicity of the bismuth sodium tartrate used by us was the absence of demonstrable circulatory effects in a dog weighing 5 Kg. which received 15 mg. intravenously, or 3 mg. per kilogram.

Comparative Diuretic Effects of Bismuth Sodium Tartrate, Merbaphen and Theophylline

Patient	Diagnosis	Drug and Dosage Used	Percentage Increase of Maximum Diuresis*	Duration of Diuresis in Days	Urinary Excretion of Bismuth (Percentage of Total Administered)
		Patients Without Edema			
1	Neurosyphilis	Bismuth sodium tartrate, 0.03 Gm.	40	10	46
2	Neurosyphilis	Bismuth sodium tartrate, 0.03 Gm.	77	6	47
		Patients With Edema			
3	Edema; cirrhosis of liver	Bismuth sodium tartrate, 0.03 Gm.	312	5	40
		Theophylline, 4.0 Gm.	134	1	..
4	Cardiac decompensation; cirrhosis of liver; ascites	Merbaphen, 0.04 Gm.	105	1	..
		Merbaphen, 0.04 Gm.	256	1	..
		Merbaphen, 0.04 Gm.	283	1	..
		Merbaphen, 0.04 Gm.	1900†	1	..
		Bismuth sodium tartrate, 0.03 Gm.	201	18	44
5	Cardiac decompensation; arteriosclerosis; anasarca	Bismuth sodium tartrate, 0.03 Gm.	556†	4+	29.4
		Bismuth sodium tartrate, 0.03 Gm.	48	6+	58.3
		Theophylline, 1.6 Gm.	121	3	..
		Merbaphen, 0.08 Gm.	223	4	..
		Bismuth sodium tartrate, 0.03 Gm.	100	6	16.5

* Compared with medians of the daily diuresis during the control periods before bismuth, or the other drugs, the maximum being the peak of diuresis.
† Compared with the preceding day only.

The bismuth sodium tartrate (Searle) used is said to be a tetrabismuth tartrate [6] and is dispensed as a water-clear solution of 1.5 per cent strength in a solution of 25 per cent (hypertonic) of sucrose containing 2 per cent of benzyl alcohol. Two cubic centimeters, or 0.03 Gm., of the compound, was injected intramuscularly as a single dose, or the equivalent of 0.0221 Gm. of metallic bismuth. The five subjects used received a constant fluid intake throughout; two of the subjects (1 and 2)

* From the Departments of Pharmacology and of Medicine, Stanford University School of Medicine.
* Assistance in a part of the work was rendered by Miss Frances Watson, A.B., research assistant, on a grant to Drs. P. J. Hanzlik and H. G. Mehrtens from the Committee on Research in Syphilis of New York.

1. Mehrtens, H. G.; Hanzlik, P. J.; Marshall, D. C., and Brown, N. S.: Bismuth as a Diuretic, J. A. M. A. **91**: 223 (July 28) 1928.
2. Steinfeld: Arch. f. exper. Path. u. Pharmakol. **20**: 40, 1886.
3. Masson, G. A.: J. Pharmacol. & Exper. Therap. **30**: 39 (Nov.) 1926; **30**: 121 (Dec.) 1926.
4. Leonard, C. S.: J. Pharmacol. & Exper. Therap. **28**: 89, 121 (July) 1926. Leonard, C. S., and O'Brien, J. L.: Ibid. **28**: 109 (July) 1926.
5. Raiziss, G. W., and Severac, M.: Curative Effect of Bismuth Compounds in Experimental Rabbit Syphilis, Arch. Dermat. & Syph. **12**: 661 (Nov.) 1925.
6. Kober, P. A.: J. Lab. & Clin. Med. **12**: 962 (July) 1927.

were ambulatory and received the bismuth for neurosyphilis, and three (3, 4 and 5) were patients with edema, confined to bed. In two of the latter, phenolsulphonphthalein tests of renal functional efficiency were applied, and the urines of all subjects were examined for albumin and casts. Theophylline was administered by mouth to patients 3 and 5, and merbaphen, intravenously, to patients 4 and 5, for a comparison of the diuretic effects with those of sodium bismuth tartrate in the same patients. The bismuth of the urine was estimated by a modification of Leonard's method.[7] The individual results obtained are presented in five charts, and a summary of the important changes is given in the accompanying table. The results on changes in diuresis in the table were compiled from tabulated data.

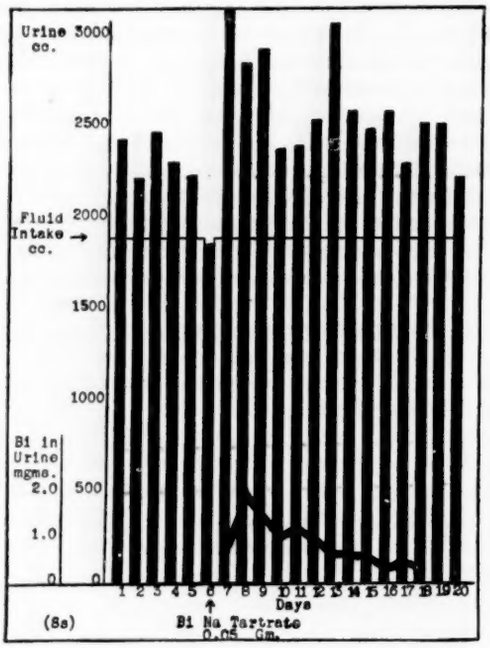

Chart 1 (case 1).—Diuresis following intramuscular injection of bismuth sodium tartrate. In all charts, the solid vertical blocks denote daily urine ouput and the hollow rectangles between them, the daily fluid intake. The transecting solid black line denotes the curve of daily excretion of bismuth in the urine. The lower segment of each chart indicates the doses of the drugs used, the sizes of the different figures used indicating the magnitude of dosage.

DIURESIS IN AMBULATORY SUBJECTS WITHOUT EDEMA

The results in charts 1 and 2 and in the table indicate that the bismuth sodium tartrate acted definitely as a diuretic. The action was demonstrable on the second day after administration and lasted with some fluctuations until the end of six and ten days. The optimum diuresis amounted to increases of 40 and 77 per cent and followed the curves of bismuth excretion in both subjects until a daily output of about 0.5 mg. of bismuth had been reached, when the urinary output returned to the previous level.

DIURESIS IN THE PATIENTS WITH EDEMA

The results, presented in charts 3, 4 and 5 and in the accompanying table, corroborate those of charts 1 and 2 and leave no doubt that the bismuth sodium tartrate acted as a diuretic in the conditions of edema and anasarca in which it would be therapeutically indicated. The actions were as prompt as those in the ambulatory and nonedematous subjects, and more lasting. The duration of action after all doses in the latter subjects ranged from four to more than eighteen days, with a median of six days. A definite response was obtained with each single dose injected, a repetition of the diuretic action being produced twice in patient 5 (chart 5). Inspection of all charts shows that the variations in the controls could not account for the increases in urine output after bismuth.

The diuretic efficiency of the bismuth sodium tartrate in the patients with edema generally exceeded that of merbaphen and of theophylline sodium acetate. Taking theophylline first, patient 3 (chart 3) received 4 Gm. by mouth, which was more than 133 times the dose of bismuth sodium tartrate previously given intramuscularly; yet the increase of diuresis after theophylline was only 134 per cent, as compared with 312 per cent after bismuth, and the diuresis lasted only one day after theophylline and five days after bismuth. Patient 5 (chart 5) received 1.6 Gm. of theophylline by mouth, or more than twenty-six times the total dose of bismuth sodium tartrate (0.06 Gm.) given in two divided doses previously. The increase of diuresis after theophylline was 121 per cent; and after the first dose of bismuth, it was 556 per cent, and after the second dose, 48 per cent. The duration of the diuresis was probably more than four and six days, respectively, after the two doses of bismuth, while after theophylline it was only three days. Thus, it appears that the bismuth sodium tartrate was decidedly more efficient than theophylline, as a diuretic, in these two patients. However, theophylline sodium acetate and bismuth sodium tartrate are not strictly comparable chemically, and it is possible that the unfavorable results here obtained with theophylline sodium acetate might not hold with a wider range of dosage.

In patient 4 (chart 4), with edema, a comparison was made with four doses of merbaphen given at different times prior to a single dose of bismuth sodium tartrate; the result was that bismuth acted more efficiently so far as removal of the edema was concerned. The duration of the diuresis after each dose of merbaphen was only twenty-four hours, while after bismuth sodium tartrate it was five days, before the fluid intake changed. It is probable that the diuretic action in this patient lasted more than eighteen days, although the two small and temporarily higher levels of fluid intake reached after the fourth day probably contributed to the higher level of diuresis during the later periods. The peak of diuresis during the short period of action of the first three doses of merbaphen was slightly higher than after the bismuth, the increases ranging from 105 to 283 per cent (median, 256 per cent) after merbaphen, as compared with an increase of 201 per cent after the bismuth (thirty-seventh day) in much smaller dosage. This patient required repeated paracentesis and withdrawal of fluid for comfort at the time he received merbaphen,

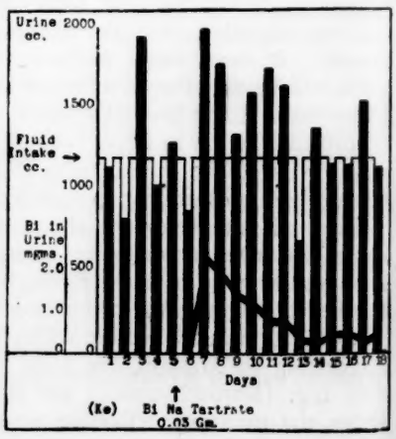

Chart 2 (case 2).—Diuresis following intramuscular injection of bismuth sodium tartrate.

7. Leonard, C. S.: J. Pharmacol. & Exper. Therap **28**: 81 (July) 1926.

but not after he received bismuth. Thus, it would appear that the bismuth acted more favorably than did merbaphen.

In patient 5 (chart 5), 0.08 Gm. of merbaphen intravenously caused about two-thirds the increase in diuresis produced by the first dose of 0.03 Gm. of bismuth sodium tartrate intramuscularly, or three-eighths the dose of merbaphen; that is, there was an increase of 223 per cent after the former as against 556 per cent after the latter, the duration being the same, or almost four days. The second dose of bismuth caused about one-fifth the diuretic increase resulting from merbaphen, but the duration after bismuth was at least two days longer (i. e., six days) than after merbaphen. The third, or last, dose of bismuth, given after merbaphen, caused about one-half the increase in diuresis caused by merbaphen; i. e., 100 per cent after the former as compared with 223 per cent after the latter, but the duration after bismuth was two days longer than after merbaphen. Here again, as in patient 4, the greater maintenance of diuresis caused by bismuth sodium tartrate stood out in contrast with the shorter duration after the greater dose of merbaphen. The fourth dose of merbaphen in patient 4 gave a very large increase in diuresis, namely, 1,900 per cent, although it lasted only one day. The obvious difference between the two compounds was that the diuretic effect could not be maintained with merbaphen, although it could be repeated with variable results, while the maintenance of action after the single dose of bismuth was extraordinarily good.

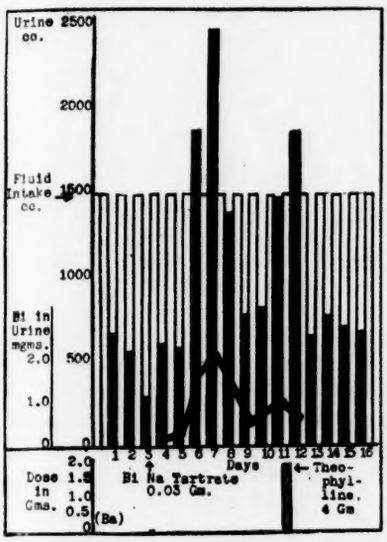

Chart 3 (case 3).—Comparative diuretic effects of bismuth sodium tartrate intramuscularly and theophylline sodium acetate orally in edema.

The percentage increase of maximum daily outputs of urine in the edematous patients receiving bismuth ranged from 48 to 556, with a median of 201 per cent. Since the action in each patient was well sustained, this meant that large volumes of tissue fluid must have been removed, and consistent with this were the facts that the patients became considerably reduced in body weight and reported definite subjective relief.

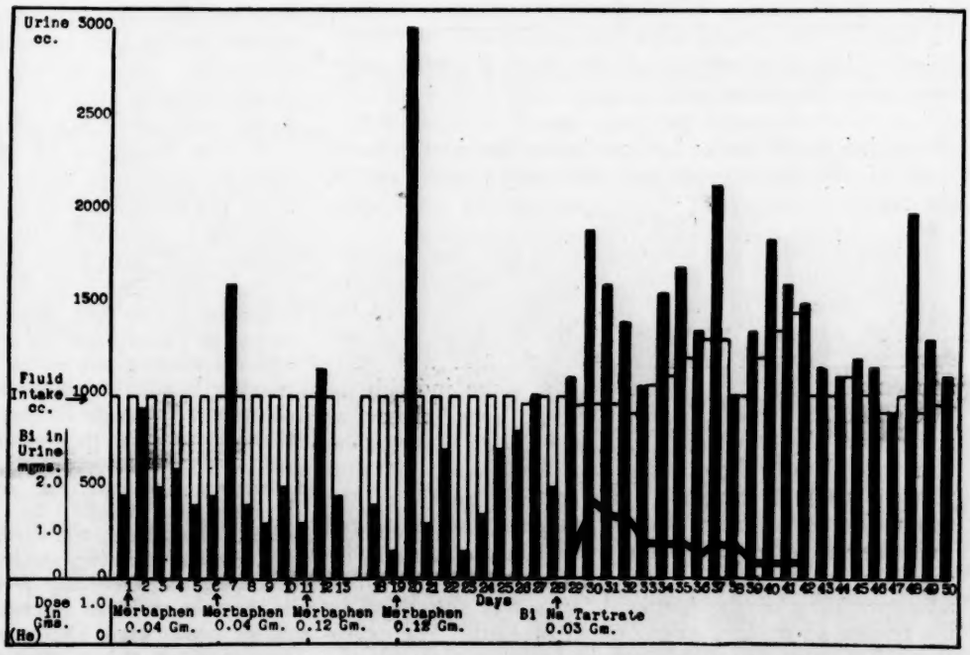

Chart 4 (case 4).—Comparative diuretic effects of merbaphen intravenously and bismuth sodium tartrate intramuscularly in ascites.

SIDE ACTIONS

Deleterious effects on the kidney, as indicated by tests for albumin in the urine of all subjects and the excretory tests with phenolsulphonphthalein made in patients 3 and 4, were not demonstrable. The excretion of the phenolsulphonphthalein amounted to 50 and 63 per cent before, and 50 and 65 per cent after, the injection of bismuth, respectively. None of the subjects used in this study complained of pain or burning at the site of injection, and there were no objective evidences of irritation. A female patient in the neurologic clinic, used for excretory studies in another series, received injections of single doses at two different times, and both times suffered abscesses; the first time the abscess required surgical evacuation, and the second time the local reaction subsided after rest in bed and local applications. This was the only side action observed among a total of 200 injections in twenty patients receiving the bismuth sodium tartrate in the Stanford clinics to date.

EXCRETION OF BISMUTH

Only brief mention will be made here of the excretion, since it is planned to report on this feature separately. The peak of excretion in all subjects was reached from two to four days after administration; hence, more quickly (about one-seventh to one-third the time) than in the case of insoluble bismuth.[1] The excretion was completed at the end of from nine to fourteen days (median thirteen days), and therefore also more rapidly than with insoluble and oil-suspended bismuth. These results suggest more rapid diffusion, absorption and elimination of the water-soluble bismuth sodium tartrate. The total excretion in subjects without edema was somewhat greater than with insoluble bismuth, amounting to 46 and 47 per cent of the total administered. In patients with edema the total excretion was somewhat less than in those without edema; namely, from 16.5 to 44 per cent. The higher excretion of 58.3 per cent occurring after the second dose in patient 5 is not considered with the latter figures since it appeared to be due to the other drugs. The remainder

of the bismuth was probably excreted partly in the feces, although it is believed that the greater portion was stored in the body and then excreted in such small amounts that it could not be estimated. The analytic method used by us, however, had a high sensitivity and accuracy. It is interesting to note in patient 5 with edema that during the diuresis after merbaphen considerable quantities of bismuth were excreted into the urine, despite the fact that the excretion had reached the zero level following a rather low excretion after the injection of bismuth ten days previously. The excretion of the stored bismuth was greater after merbaphen than after theophylline. These results suggest that the bismuth had been retained in the edema fluid of the tissues and was released under the influence of merbaphen acting as a tissue diuretic. Since theophylline did not have such an effect, it appears that the mechanism of diuresis after theophylline is different from that of merbaphen. As far as the diuretic action is concerned, the excretory results would favor the use of bismuth sodium tartrate rather than the insoluble or oil-

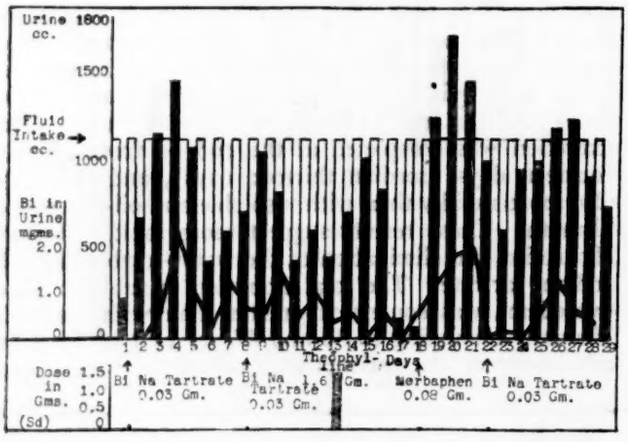

Chart 5 (case 5).—Comparative diuretic effects of bismuth sodium tartrate intramuscularly, theophylline sodium acetate orally and merbaphen intravenously in anasarca.

suspended compounds; but, as far as use in the treatment of syphilis is concerned, this may or may not be the case.

COMMENT

It was the sustained diuretic action that was the most striking feature of the diuretic action of bismuth sodium tartrate observed in this study. This far excelled the duration observed previously with insoluble and oil-suspended bismuth [1] in other subjects, and with merbaphen and also theophylline in the same individuals. The peak of diuresis was somewhat lower than that sometimes observed with merbaphen, but higher than that with theophylline, and it compared favorably with that of insoluble bismuth. The greater action of the water-soluble bismuth sodium tartrate, as compared with the insoluble and oil-suspended bismuth, was presumably due to more prompt and complete absorption and spreading of the former. This was suggested by the results on urinary excretion of bismuth. The excretion of bismuth after the bismuth sodium tartrate was completed sooner than after the insoluble forms, this feature possessing an obvious advantage over the latter forms in reducing the possibilities of harm from the deposits of bismuth.

From other work on the distribution of bismuth, the concentration of the ion has been found to be greatest in the kidneys, regardless of the form in which it was injected. As indicated by the absence of albuminuria and of differences from the control excretion of phenolsulphonphthalein, the renal functional efficiency did not seem to be impaired; in fact, the well sustained diuresis testified to the maintenance of high renal functional efficiency. On the other hand, the possibility of injury to the kidney, both functionally and morphologically, from merbaphen, which is an organic mercury compound, is well known. In this respect, therefore, bismuth sodium tartrate has another advantage. Finally, there are other advantages of bismuth over both merbaphen and theophylline. Bismuth acts without the necessity of intravenous injection, as is frequently the case with merbaphen, thereby avoiding undesirable reactions and possible collapse. Theophylline is given by mouth, hence with the possibility of uncertain absorption; sometimes side actions are manifested by undesirable disturbances of the central nervous system and of the circulation and by possible irritant action on the kidney. We have found the use of bismuth sodium tartrate, in the dosage of 0.03 Gm. intramuscularly, painless; in fact, practically symptomless save for the efficient diuresis, an action that is dependable and of great usefulness in the treatment of edemas of cardiac origin. Our number of cases is too small to indicate its possible efficiency in other kinds of edema, but it caused a definite diuresis in patients with ascites. Provisionally, it would not appear to be contraindicated in edema accompanied by mild or moderate degrees of nephritis.

CONCLUSIONS

1. Bismuth sodium tartrate, injected intramuscularly in doses of 0.03 Gm., caused a prompt and well sustained diuresis in subjects with and without edema.

2. This action occurred without demonstrable local or systemic reactions and apparently without injury to renal functional efficiency.

3. The diuretic efficiency of bismuth sodium tartrate excelled that of merbaphen and of theophylline sodium acetate in the two subjects in whom these drugs were compared. The advantages of bismuth over these drugs and also over the insoluble and oil-suspended bismuth compounds are discussed.

4. The excretion of bismuth after bismuth sodium tartrate is prompt and more rapid and complete than after the insoluble and oil-suspended bismuth products, this being of practical importance in circumventing possibilities of harm from the stored bismuth of the latter.

Otitis Media and Brain Abscess.—Too much emphasis cannot be placed upon the strategic position of the middle ear and the mastoid process as a source of infection. Its commanding location is evident upon even a cursory survey of the anatomy. Anteriorly lie the carotid sheath and the eustachian tube. Posteriorly are situated the facial nerve, the lateral sinus and cerebellum; inferiorly, the jugular bulb, superiorly the meninges. Particularly in children, where the eustachian tube is short and straight, the possibility of infection spreading readily from the middle ear to the throat is manifest. Coughing, blowing the nose, sneezing, swimming, diving, swallowing, hiccuping, etc., especially in the presence of a purulent infection of the nose or of an accessory sinus, may result in an abscess of the middle ear. The bony roof above the mastoid attic and antrum is thin at best, often imperfect from dehiscences, so that pus in the middle ear directly bathes the dura. Even where the bony tegmen is intact the emissary veins furnish a route for infection. The widely quoted statement of Oppenheim is then the cause of no surprise when he says, "Chronic purulent otitis media is the most important cause of brain abscess, as it gives rise to a half or at least a third of all cases."—Kiehle, F. A.: Brain Abscess of Otitic Origin, *Northwest Med.*, December, 1928.

ACUTE GLANDULAR FEVER OF PFEIFFER

REPORT OF A NURSERY EPIDEMIC

CLARA M. DAVIS, M.D.
CHICAGO

During the latter half of November, 1928, there occurred at the Santa Chiara Nursery in Chicago an epidemic of acute glandular swelling which affected every infant in the nursery and conformed in all particulars to the syndrome described by Pfeiffer [1] and others [2] under the name of acute glandular fever.

Acute swelling of cervical glands has apparently been of uncommon frequency in Chicago this winter, and numerous cases of the type described by Pfeiffer have been seen by various observers in both private and dispensary practice. Many more have doubtless been regarded as the simple noncontagious acute cervical adenitis consequent on colds or influenza by those whose attention has not been previously called to the rather scanty literature on the subject.

Nothing is known as to the source of infection or contagion in this nursery epidemic. The nursery, which is maintained for experimental feeding purposes, is a small one with accommodations for only ten infants. All infants are continuously in residence, not going home at any time, and infants and children are not admitted as visitors. New admissions had not been made for more than a month preceding the outbreak of the epidemic and no illness other than a few mild colds had been noted among the infants or personnel during the preceding two months. Pasteurized milk was used, supplied by one of the larger dairy firms of the city.

The admission of a new infant, Lee McC., to the nursery, on November 28, eleven days after the outbreak of the epidemic, gave the opportunity for an observation of the incubation period and the duration of contagion in this form of glandular fever. This infant was placed in a room with Robert P., who appeared to have completely recovered from the disease and had been free from fever for a week.

December 8, eleven days after admission, Lee McC. became ill with glandular fever, and on December 14 Robert P. had a mild recurrence (relapse?) lasting three days. Further evidence of an incubation period between ten days and two weeks was gained from the white blood cell counts, as is mentioned later.

Prodromal symptoms of one day's duration were observed in all. These symptoms were merely a slight listlessness and lessened appetite that in an isolated patient might be easily overlooked, as they were not accompanied by fever or any objective signs of illness.

The onset of illness was sudden in every case and the epidemic explosive in character. Seven of the eight infants then in residence (ages ranging from 7 to 33 months) became acutely ill, November 17, with marked prostration, fever and swollen glands, the signs and symptoms varying only in degree. The duration of the illness in individual cases was from three to six days and the fever a continued one, with a maximum temperature of from 101.5 to 104.6 F. (rectal) and a rapid decline to normal within a few hours after the swelling of the cervical glands had attained its greatest size. From the onset there was an intense and uniform pinkish redness of the nasal, pharyngeal and tonsillar mucous membrane (without injection of vessels); a slight, thin, colorless nasal discharge, and swelling of the tonsils, without exudate. The posterior cervical glands were the most severely affected, unilaterally in some infants, bilaterally in others, and in still others, first on one side, then on the other. Approximately half the infants had enlargement of anterior cervical and inguinal glands also, but in none were enlarged axillary glands found. The cervical glands varied in size from that of a small bean to that of a large olive and with the accompanying swelling (edema) of the overlying tissues formed symmetrically rounded masses which, when viewed from the rear, were seen to be much larger than the glands that could be felt in them. In a few the edema extended up over the corresponding side of the face, giving a mumps-like appearance to it. The glands themselves were always discrete, not fixed to the surrounding tissues but slipping under the fingers, and felt curiously elastic or resilient. The swollen glands were exquisitely tender and in most cases there was stiffness of the neck, so that head and body were turned together. In three cases the degree of stiffness was such that the infant could be raised from a horizontal to a sitting position without bending of the neck by lifting it with a hand under the occiput. Marked retraction of the head occurred in one. Swelling of the inguinal glands was never as great as that of the cervical glands, nor was it accompanied in any case by swelling of the overlying tissues.

Following defervescence, the swelling of overlying tissues disappeared almost as rapidly as it had come, and the glands decreased in size, but more slowly, until four weeks after recovery no palpable glands could be found in those infants who had had none previously; in those infants in whom palpable glands had been noted prior to this illness, the same glands were found to be palpable and of approximately the same size. Swelling of the spleen was conspicuously absent, the spleen being just palpable in one case; but enlargement of the liver occurred in all cases, the liver border being usually from 2 to 3 cm. below the costal border and in one case at the level of the umbilicus. Enlargement of the liver was maximum about two days later than the maximum enlargement of the cervical glands and retrogression in its size was complete within a week or ten days.

Five of the nine infants had a relapse. The intervals between the first attack and the relapse varied from five to twenty-four days and during the intervals the infants were free from fever, ate with their usual appetite, and appeared well. Relapses were usually shorter by a day or two than the original attack, and although there was little difference in the swelling of the glands or the height of the fever, prostration and malaise were notably less. Infants who had lain listless and quiet in their beds during the original attack sat up and played with their toys throughout the relapse. In some infants the relapse affected only the glands first involved; in others in whom the first involvement had been unilateral, the glands of the opposite side were affected.

None of the infants had a cough or any signs or symptoms referable to the bronchi, lungs or pleura, nor were albumin or casts found in the urine of any. Vomiting or gastro-intestinal disturbance other than one or two rather loose stools the day of onset did not occur

1. Pfeiffer, E.: Jahrb. f. Kinderh. **29**: 257, 1889.
2. Gourichon: Thèse de Paris, 1895. Korsakoff: Arch. f. Kinderh. **41** and **42**, 1905. West, Park: Arch. Pediat. **13**: 889, 1896.

and, strangely enough, in view of the fever, prostration and tonsillar swelling, all except one infant (two days) selected both solid and liquid foods from their trays with fair appetite, the voluntary reduction in food intake, as shown by their calory records, being about one third.

During convalescence a slightly yellowish pallor of the skin was noticeable, but the urine did not contain bile nor were the sclerae bile stained.

Blood examinations showed a lymphocytosis, with total white counts ranging from 18,000 to 33,000, of which from 60 to 80 per cent were lymphocytes. The red cells were diminished by from 500,000 to 1,000,000 in individual cases, and the hemoglobin loss was from 12 to 25 per cent. That the lymphocytosis is present in the incubation period is shown by the fact that it was found in the routine monthly counts made from a week to ten days before the outbreak of the epidemic. Naturally the significance of the lymphocytosis was not appreciated at the time and, as it seemed out of line both with the counts of previous months and the apparently healthy condition of the infants, several of the counts were immediately repeated with the same results.

Two cases, the mildest and the most severe, are briefly cited here to show the variation in the severity of the disease.

REPORT OF CASES

CASE 1.—R. P., a boy, aged 10 months, looked and acted ill for only one day. His fever lasted two days and did not go above 101.5 (rectal). The cervical glands were never larger than a small bean and the swelling of overlying tissues was slight. A relapse twenty-four days later was equally mild. In the absence of an epidemic, it is improbable that the diagnosis of acute glandular fever would have been made.

CASE 2.—S. P., a girl, aged 13 months, looked very ill, cried when handled, and had a fever of from 103 to 104.6 (rectal) for five days. Both the anterior and the posterior cervical glands were involved, several on each side being swollen to the size of large olives, and the swelling of overlying tissues gave to the neck a "collared" appearance. Stiffness of the neck and retraction of the head were extreme; the tonsils were so swollen that they almost met, and for two days the patient was unable to take solid food and liquids taken were in large part regurgitated through the nose, although there was no evidence of palatal paralysis. A relapse occurred ten days after recovery from the original attack; and, although fever, swelling of the glands and stiffness of the neck were equally marked, retraction of the head and regurgitation of fluids through the nose did not occur, and the patient sat up in bed and played with her toys, appearing only slightly ill.

COMPLICATIONS

Two infants had mild head colds with mucopurulent nasal discharge of several days' duration at the time of the outbreak of the epidemic. One of these had a right suppurative otitis media with spontaneous rupture of the drum on the second day of the original attack, which involved only the left posterior cervical glands. The other, fourteen days after recovery from a relapse involving the left cervical glands, had a firm, inelastic, progressive enlargement of one of them that went on to suppuration. The fact that only the two infants who had mucopurulent nasal discharges at the onset of the disease had suppurative complications suggests the possibility that suppurations in the ears or glands occurring in association with acute glandular fever are not true complications of the disease itself but are the result of mixed infection.

Of the personnel (nine in number) who had direct contact with the infants, one, E. O., a nursemaid, contracted the disease. She became ill nine days after the outbreak of the epidemic and had all the signs and symptoms noted in the infants with the exception of fever and enlargement of the liver. Her complaints were of severe headache and backache, sore throat, and pains in the hands and feet (the latter also a complaint of the 33 months' old infant). She did not have a relapse.

SUMMARY

In an epidemic of the acute glandular fever of Pfeiffer, all the infants and one nursemaid in a small nursery were affected. There was wide variation in the severity of the cases but all conformed closely to the description of Pfeiffer. Lymphocytosis appeared early in the incubation period. Relapses occurred in the usual large percentage of cases. Suppurative complications occurred only in infants with mixed infections. Recovery within four weeks, with a return of the glands to their preepidemic size and condition, was the rule.

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THE EXCRETION OF LEAD*

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Evidence was presented by this laboratory in 1926[1] that measurable quantities of lead are excreted in the urine and feces of persons with and without a history of industrial exposure to lead compounds. This finding so far as fecal excretion is concerned has been verified by Leake[2] and his associates in the United States Public Health Service. They did not study the urinary excretion of lead.

The implications which naturally develop from such evidence necessitate further investigation. Few industries exist in which some lead compound is not used. It is conceivable, therefore, that examination into the entire occupational history of an employee might yield information pointing to the existence of sources of exposure previously unrecognized. On the other hand, lead is found in the dust of city streets and elsewhere on the earth's surface.[3] It is found in the carcasses of experimental animals so commonly[4] as to suggest that meat-producing animals similarly have lead in their tissues. Furthermore, other foods, especially fruits, often contain small amounts of lead.[5] Whether or not such minute and possibly irregular exposures are sufficient to cause the absorption and the subsequent secretion of lead by a large proportion of the nonindustrial population is a matter of considerable interest.[6] It is especially important since evidence in support of such conclusions would tend to show that lead is excreted much more readily and regularly than is commonly thought to be the case. Finally, it becomes necessary to establish beyond question the sensitivity and accu-

* From the Eichberg Laboratory of Physiology in the University of Cincinnati.

1. Kehoe, R. A.; Edgar, Graham; Thamann, Fred; and Sanders, Lester: Excretion of Lead by Normal Persons, J. A. M. A. **87:** 2081 (Dec. 18) 1926.
2. Leake, J. P., and others: Bull. 163, U. S. P. H. S., 1926.
3. Report of Selby Smelter Commission: Bull. 98, Bureau of Mines, 1915. Unpublished data on lead dusts in city streets.
4. Unpublished data.
5. Lead in Food Containers, Brit. Food J. **12:** 204. Lead on Fruit, Bull. Soc. Chim. **11:** 413. Arsenic on American Apples, London Letter, J. A. M. A. **88:** 938 (March 19) 1927. Tatlock, R. R., and Thomson, R. T.: Lead in Cream of Tartar, Analyst **33:** 173. Howard, C. D.: Lead in Water, Am. J. Pub. Health **13:** 207 (March) 1923.
6. Studies now being made show that infants and young children taken at random from among hospital patients are excreting small amounts of lead.

racy of the methods of analysis for lead by which results so at variance with the larger portion of contemporary experience have been obtained.

These considerations have led us to carry out observations on a large number of subjects over a wide geographic and occupational range, and to exercise great care in obtaining precise information as to their past and present exposure to lead. At the same time, the methods of analysis for lead in excreta have been and are being subjected to critical examination.

The studies described here have demonstrated that lead is being excreted in both the urine and the feces of normal persons, quite apart from industrial exposure to lead compounds. They show, further, that persons whose occupations involve some degree of contact with lead excrete somewhat larger quantities of lead as a general rule, while those for whom exposure to lead compounds constitutes a recognizable industrial hazard excrete still larger amounts.

EXPERIMENTAL METHODS

1. *Selection of Subjects.*—(*a*) Subjects with no occupational exposure to lead: Seventy-one medical students provided us with subjects of this type. Only four had had occupational contact with lead compounds prior to their collegiate work or during their vacation periods, and in these instances the exposure was slight and brief.

(*b*) Subjects with slight occupational exposure to lead: Seventy-two filling station handlers of commercial gasolines not containing lead (tetra-ethyl lead) were studied. There was no recognizable exposure to lead in the course of their day's work, but eighteen of them had experienced some degree of previous industrial lead exposure for variable periods of time. Only three of these had had exposures which could be regarded as hazardous. Twenty-six others gave histories of doubtful significance with regard to lead exposure, and twenty-eight were negative.

(*c*) Subjects with a present exposure to recognized lead hazards: Ninety-seven subjects representing all the various degrees of dust exposure in two hazardous lead industries furnished the data for this portion of our study. Many types of work with lead are represented in the group, and it is difficult, for a variety of reasons, to determine accurately the relative importance of the various types of exposure. For this reason no attempt is made to subdivide this group.

2. *Collection of Data.*—A detailed and chronological occupational history was obtained on each subject. (A careful physical examination, urinalysis and blood examination were made, but these data are not considered in this discussion.) Each subject was provided with a stoppered gallon glass jug for the collection of the urine, and a quart mason jar with a glass top for the collection of the feces, these containers having been cleansed in the laboratory. Each subject was instructed as to the proper means of avoiding contamination of the contents of the containers. The specimens were not collected during working hours, and wherever possible the containers were delivered to the subject's home, in order to minimize the opportunities for external contamination. When this was impossible the subjects carried them home in sealed paper bags. Not less than 2 liters of urine, and not less than a single large evacuation was requested of each subject.

3. *Analytic Methods.*—Certain modifications of the Fairhall method were employed by us in 1926.[1] Since then technical variations have been introduced. Despite these changes the method still yields low results. The error is slight and probably uniform and therefore does not influence the significance of the results presented here. It should be pointed out, however, that the disposition of the organic material by ashing at temperatures as low as 500 C. permits a slight loss of lead by volatilization. We have not found it possible to eliminate this source of error except by resorting to the more laborious method of acid digestion of the organic material. We have been compelled to use the latter method in recent animal experiments, but we have not seen the necessity for it in work of the scope of the present study.

The reagents employed in the analysis were of tested lead-free quality, while all glassware, except the original containers and the funnels, was pyrex or fused silica. Scrupulous care was exercised as to the technical procedures and the cleanliness of the laboratory and apparatus, and all work, other than that of the analyses, was excluded from the laboratory rooms.

Analysis of Feces.—The samples were dried in weighed silica dishes at 105 C. to constant weight, and then ashed in an electric muffle at a temperature controlled by pyrometer so as never to exceed 500 C. After being weighed the ash was carefully moistened with water, and then dissolved in hot nitric acid (1:1). The solution was diluted and filtered into a 600 cc. beaker, the slight residue having been washed alternately with hot nitric acid (1:1) and hot water, and then discarded. The filtrate was evaporated to dryness, taken up in hydrochloric acid (1:1), and divided into two equal portions. A single portion was diluted to 300 cc. in a 600 cc. beaker and neutralized with 25 per cent sodium hydroxide to a slight permanent turbidity, and to a faint pink to methyl orange. The solution was treated with hydrogen sulphide gas for one hour, allowed to stand over night and then filtered, the precipitate being transferred to the paper and washed with freshly prepared hydrogen sulphide water, to which had been added 0.1 per cent of its volume of hydrochloric acid. The precipitate was dissolved off the paper into the beaker in which the precipitation was made with hot hydrochloric acid (1:1) containing 4 per cent nitric acid (specific gravity 1.42), the sides of the beaker and the gassing tube being washed with the same acid. The paper was washed thoroughly with hot water. The acid solution was boiled to drive off the hydrogen sulphide, then diluted to 300 cc. with cold water, and neutralized with 25 per cent sodium hydroxide to a faint pink to methyl orange, after which the treatment with hydrogen sulphide for one hour was repeated.

The precipitate, allowed to settle over night, was filtered off and washed thoroughly with freshly prepared acid hydrogen sulphide water, and dissolved off the paper with hot nitric

TABLE 1.—*Distribution of Subjects According to Lead in Feces*

Lead in Feces, Mg. per Gm. Ash	Medical Students		Workmen with Negative or Slight Industrial Exposure to Lead		Workmen with Moderate or Severe Industrial Exposure to Lead Dusts	
	Number	Percentage	Number	Percentage	Number	Percentage
0-0.04	25*	42	29	41	2	2
0.05-0.09	19	32	26	37	7	8
0.10-0.14	9	15	8	11	5	5
0.15-0.19	3	5	4	6	7	8
0.20-0.24	1	2	..	..	6	6
0.25-0.29	..	..	1	1	6	6
0.30-0.34	..	..	1	1	5	5
0.35-0.39	..	..	..	..	4	4
0.40-0.44	1	2	1	1	3	3
0.45-0.49	..	..	..	..	4	4
0.50-0.74	1	2	..	..	19	21
0.75-0.99	..	..	..	..	6	6
1.00-1.49	..	..	..	..	9	10
1.50-1.99	..	..	1	1	5	5
2.00 and over	..	..	..	..	5	5
Totals.....	59	100	71	100	93	100

* Only five of these results are "nil."

acid (1:1) into the beaker in which the precipitate was formed. The sides of the beaker and the gassing tube were washed down with the acid, and the paper was washed with hot water. After evaporation to a small volume, the solution was transferred to a 100 cc. beaker, treated with 1 cc. of sulphuric acid (specific gravity 1.84) and evaporated to fumes of sulphuric acid. The cooled solution was taken up in 30 cc. of a mixture of 10 cc. of 95 per cent ethyl alcohol and 20 cc. of water; this was allowed to stand over night and filtered, the paper and beaker being washed with a solution containing 1 cc. of sulphuric acid (specific gravity 1.84), 10 cc. of ethyl alcohol and 20 cc. of water. The precipitate was dissolved off the paper into a 600 cc. beaker, 10 cc. of hot 10 per cent ammonium acetate followed by hot water being used. (This procedure is best done by first washing the beaker in which the precipitate was made, then decanting the solution and washings through the filter.) This solution, now diluted to 300 cc. with water and 2 drops of nitric acid (specific gravity 1.42) was made alkaline to methyl red with 25 per cent sodium hydroxide and then neutralized with hydrochloric acid (1:2), 1 cc. of the acid being added in excess.

A fresh treatment with hydrogen sulphide for one hour was made, and, after being allowed to settle over night, the sulphide precipitate was filtered off and washed thoroughly with acid hydrogen sulphide water. The precipitate was dissolved off the paper with hot nitric acid (1:1) into the beaker in which it was made, the sides of the beaker and the tube again being washed down with the acid. The paper was washed with hot water. The solution was evaporated down to from 1 to 2 cc., transferred to a 150 cc. beaker, diluted to 80 cc., neutralized with 25 per cent sodium hydroxide (free from iron and aluminum), 0.5 per cent phenolphthalein in 1 per cent aqueous sodium hydroxide being used as an indicator, and then made alkaline by the addition of 5 drops of 25 per cent sodium hydroxide in excess. (This was done for the purpose of supplying sodium acetate to repress the hydrogen ion concentration.) Acetic acid (5 per cent) was then added till the pink just faded; then 2 cc. was added in excess. The solution was brought to a boil

TABLE 2.—*Distribution of Subjects According to Lead in Urine*

Lead in Urine, Mg. per Liter	Medical Students		Workmen with Negative or Slight Industrial Exposure to Lead		Workmen with Moderate or Severe Industrial Exposure to Lead Dusts	
	Number	Percentage	Number	Percentage	Number	Percentage
0-0.02	11*	17	4	6	..	..
0.03-0.05	22	34	20	29	3	3
0.06-0.08	16	25	18	26	9	9
0.09-0.11	10	15	7	10	7	7
0.12-0.14	1	2	6	9	14	14
0.15-0.17	1	2	3	4	13	13
0.18-0.20	1	2	5	7	10	10
0.21-0.23	1	2	..	..	6	6
0.24-0.26	..	..	..	..	9	9
0.27-0.29	1	2	..	..	5	5
0.30-0.32	..	..	..	..	..	..
0.33-0.35	..	..	..	..	1	1
0.36-0.38	..	..	..	..	2	2
0.39-0.41	..	..	..	..	2	2
0.42-0.48	..	..	1	1	4	4
0.52-0.58	..	..	1	1	4	4
0.62-0.68	1	2	1	1	3	3
0.72-0.78	..	..	1	1	..	..
0.82-0.88	..	..	..	..	1	1
1.00-2.00†	..	..	1	1	2	2
4.00 and over†	..	..	..	..	2	2
Totals.....	65	100	98	100	97	100

* Only two of these are "nil."
† Atypical results ignored in calculations of table 3.

and 1 cc. of 1 per cent potassium chromate solution was added, the precipitating mixture being kept at a temperature of 105 C. for an hour and at not less than 60 C. over night. The precipitate was filtered off and washed very thoroughly with hot water to remove all possible traces of soluble chromate. It was then dissolved into a 250 cc. Mohr flask containing 100 cc. of water, 15 cc. cold hydrochloric acid (1:2) being used, followed by cold water. The beaker and rod were washed similarly and the washings decanted through the filter paper.

A standard solution for the colorimetric estimation of lead was freshly prepared for each set of determinations by adding 100 cc. of water and 15 cc. cold hydrochloric acid (1:2) to 3 cc. of a stock solution of potassium dichromate, containing 0.0710 Gm. of potassium dichromate per liter (1 cc. = 0.10 mg. of lead), in a 250 cc. Mohr flask.

Two cubic centimeters of a 1 per cent solution of S-diphenyl carbazide in glacial acetic acid was added to each of the flasks (sample and standard). The contents of each flask were diluted to 250 cc. and mixed thoroughly. The colors of the two solutions were compared by means of a large Duboscq colorimeter, and the lead in the samples was calculated from the readings.

Analysis of Urine.—The volume of the urine was measured and 40 cc. of ammonia water (specific gravity 0.90) was added

TABLE 3.—*Comparison of Mean Values of Lead Excretion in Feces and Urine in Various Groups*

	Mean Lead Excretion in Feces, Mg. per Gm. of Ash	Mean Lead Excretion in Urine, Mg. per Liter	Number of Persons
Medical students	0.08 ± 0.008	0.08 ± 0.007	71
Workmen with negative or slight exposure to lead*...	0.10 ± 0.016	0.13 ± 0.018	72
Workmen with moderate or severe exposure to lead...	0.65 ± 0.05	0.22 ± 0.01	93
*Eliminating all workmen who have had significant lead exposure	0.074 ± 0.007	0.096 ± 0.009	52

per liter of urine. (It has been shown that ammonia precipitates the lead, carrying it down with the phosphates.[7]) After standing twenty-four hours, the precipitate was filtered off on a fluted paper. The jug was washed on to the filter several times with cold water, then washed again with hot 10 per cent hydrochloric acid, followed by hot water. The acid and hot water washings were evaporated to dryness in a 250 cc. beaker, and the residue was added to the paper containing the precipitate in a silica dish. The contents of the dish were dried and ashed, and the analytic procedures were carried out exactly as in the case of the feces, except that the second sulphide precipitation was omitted as unnecessary.

RESULTS

To save space the analyses are shown only in the comparable terms of milligrams of lead per gram of ash, in the case of feces, and of milligrams of lead per liter of urine.

Tables 1 and 2 show the frequency distribution in the different groups. The difference in the number of subjects of a given type is due to inability to obtain both urine and feces from every subject.

All observations are included except as noted in the tables. Table 3 shows the mean values for the excretion of lead in the urine and feces.

COMMENT

The appearance of lead in both the urine and the feces of students shows that some degree of lead absorption is "normal" for everybody. That the matter has been previously overlooked is no doubt due to inadequate analytic methods rather than to any recent and abrupt changes in the quantity of general exposure to lead compounds or the influences of selected localities.[8] Only long and careful study can demonstrate the static or progressive character of the conditions that bring about exposure, and the existence or absence of any effects on life and health.

It is not our purpose, therefore, to discuss our observations in relation to the public health, but rather to

7. Fairhall, L. T.: J. Biol. Chem. **60**: 485 (July) 1924.

8. That these observations are not confined to a few sections of this country is further proved by our observations made over a period of three years on men in all parts of the United States and Canada, the results of which are not published here because the slight variations in analytic procedures over this period make these data unsatisfactory for the comparisons on which the present discussion is based. Preliminary experiments of Chaston Chapman indicate the likelihood of a similar situation in England.

use them to contribute to an understanding of the behavior of lead in the body. It is generally believed that absorbed lead accumulates almost quantitatively in the tissues and that it is stored in a comparatively inert form in the bones. Evidence has been obtained in the case of experimental animals that "stored" lead is not inert,[9] and that excretion is more rapid than it is ordinarily supposed to be.[4] The foregoing observations show that the same facts are true for man. The threshold for both the alimentary and the renal excretion of lead is low, judging from the behavior of medical students. There is an undoubted relationship between exposure to lead (presumably absorption) and lead excretion in both urine and feces. The difference between the excretory rates of students and slightly exposed workmen is not of an order to be statistically significant. This difference is not to be ignored, however, when one notes the drop in the mean excretory values of the workmen, when all those who give a history of former significant exposure to lead are eliminated from the calculations (table 3). The significance of the higher mean rate of excretion, in the case of the lead workers, is beyond question.

The variation in lead excretion within the groups of subjects is large. Observations on animals and men over a period of time show wide limits of such variability in both health and illness. Single samples of the excreta of a large number of persons would be expected to show similar variability. This feature, especially in the case of urinary excretion, only illustrates further the ease with which lead is released from the tissues.

These facts cannot fail to demonstrate the futility of crude clinical methods of determining the presence of lead in the excreta of persons suspected of having lead poisoning. Nor will a single accurate analysis yield valuable information. In order to determine whether a person has absorbed significant amounts of lead it is necessary to study the excreta under carefully controlled conditions, over a period of time sufficient to equalize the variability of the excretory rate. The existence of acute illness of any type, especially such as is associated with pathologic conditions of the excretory organs, the administration of medicaments which are believed to influence the excretion of lead (and probably many others whose action is unknown in this regard), as well as dietary variations, are to be regarded as factors that may seriously influence the processes of excretion and hence give rise to misleading information.

Even when these factors are properly controlled and when adequate knowledge as to the comparative degree of lead absorption has been obtained, the information may not be used to detect the existence of lead intoxication. It is of immediate practical value only in estimating the degree of lead exposure that has been experienced. The truth of this can be seen at once by referring to tables 1 and 2. Despite the very high excretion of lead shown by many of the subjects exposed to lead compounds, there was not a single case of incapacitating lead poisoning in the group. One may be sure that, in time, cases of lead intoxication will develop in a group of persons whose exposure to lead is so great as to yield this type of results, and if characteristic signs and symptoms are associated with such observations a diagnosis is made with somewhat greater ease and assurance. But the diagnosis must be made on the basis of the clinical observations, the analytic result being used only to establish the significance of the exposure when it might otherwise be a matter of doubt.

The proper application of a knowledge of lead excretion in industrial practice is obvious in view of these remarks. If one cannot diagnose lead poisoning by knowing the magnitude of lead excretion and thereby the extent of lead absorption, no more can one predict its development in the individual case. It may be that the discovery of the underlying mechanisms that produce lead intoxication will provide the means of anticipating or avoiding the onset of illness. This end cannot be accomplished at present except by the recognition and elimination of dangerous degrees of exposure. Direct measurements of the lead dust in the air of workrooms may be done accurately and quickly, but they do not detect the effects of carelessness and the inadequacy of dust respirators. Blood examinations, by proper methods, yield valuable and indispensable information, but the blood changes are not specific for lead. The magnitude of the lead excretion of a group of workmen tells a story that is specific and complete. The study of this end-result is thus the most effective means for the estimation of the danger in a lead occupation.

9. Kehoe, R. A., and Thamann, Fred: The Behavior of Lead in the Animal Organism: I. Am. J. Pub. Health **18**: 555 (May) 1928. Other unpublished data.

STUDIES ON DIGITALIS IN AMBULATORY CARDIAC PATIENTS

III. DIGITALIZATION BY A SMALL DOSE METHOD; THE USE OF DIGITALIS IN CHILDREN *

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NEW YORK

It is still common practice to prescribe digitalis whenever a diagnosis of heart disease is made. This indiscriminate use of the drug has introduced a great deal of confusion regarding its value and has gone a long way toward promoting the exploitation of various proprietary digitalis products, because one preparation after another is frequently tried in the hope of obtaining better results, although there is often no definite idea as to what results are to be expected. Twelve children were admitted in a period of three months to the cardiac clinic of the Hospital for Joint Diseases and in this group the following diagnoses were made: congenital heart disease, potential heart disease (there having been attacks of chorea), active carditis, and inactive heart disease with valvular lesions. Eight of these patients had received digitalis at some time prior to admission, though none had at any time, so far as could be discovered, presented any symptoms of cardiac failure.

Considerable stress has been placed in the past on the distinction between the anatomic and the functional aspects of cardiac disease—between heart disease and heart failure—from the standpoint of the indication for digitalis. And it has been sufficiently emphasized that, with few exceptions, the drug is to be employed only for heart failure. Patients with symptoms of heart failure, however, fall into two broad classes, those that show striking improvement from the drug, and those that show little or no beneficial effects. This further limitation of the usefulness of digitalis is not sufficiently appreciated. Several examples may be cited. Many patients with inactive heart disease and failure in the

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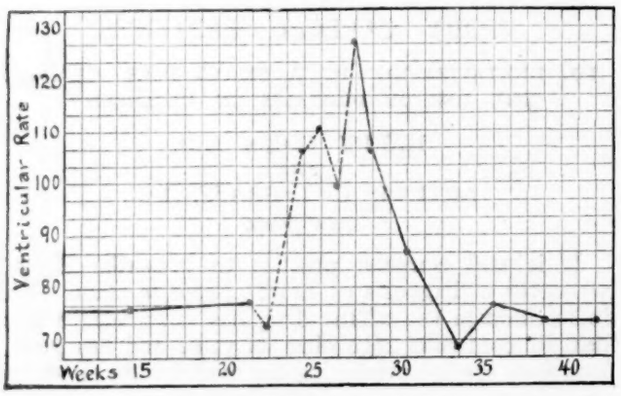
terminal stages, frequently in the last six months or year of life, show little or no improvement from the use of digitalis. An attack of active infection of the heart in an adult patient with rheumatic heart disease often precipitates congestive failure, even though a good functional state of the heart may have been maintained by full digitalization up to the time the infection started, and with the subsidence of the infection satisfactory response to digitalis may again be in evidence. The drug often produces little or no improvement in the circulatory failure supervening in the course of bacterial endocarditis in adults. The same may be said of the circulatory failure of pneumonia or other acute infections. Whether it does have some value or not in these conditions remains still to be determined, but the fact is quite certain that the results are not very striking.

It is not known what factors determine effective response to digitalis in one case of circulatory failure in man, and not in another. In animal experiments, digitalis is not often found effective in acute cardiac depression induced by other drugs. Furthermore, it can be seen that barium poisoning, for instance, causes failure of the circulation attended by a marked diminution in the volume of the heart—a systolic tendency—



The ventricular rate resulting from the administration of a fixed daily dose of the drug illustrates the observation that digitalis cumulation tends to be a self-limiting process. The patient had auricular fibrillation. The period of the experiment was forty-one weeks. During the control period of twenty-one weeks (shown by solid line) the patient received 3 grains (0.2 Gm.) daily of the powdered digitalis leaf and the ventricular rate remained between 70 and 80 a minute (only the last eleven weeks of this period are shown). When the drug was discontinued for five weeks (broken line) the ventricular rate increased markedly and continued to increase even though at the end of this period a dose of 2 grains (0.13 Gm.) daily was given for one week (line of long and short dashes). A daily dose of 3 grains was then started (solid line) and the ventricular rate began to diminish until it reached the level of the control period, at which it remained during the subsequent period of observation of eight weeks. There were no toxic symptoms at any time.

while aconite poisoning causes failure of the circulation attended by marked dilatation and increase in the volume of the heart—a diastolic tendency. From what one sees, therefore, of the opposite functional changes in the heart that may result in failure of the circulation in animal experiments, it would indeed be surprising if all the types of circulatory failure arising under the widely varying clinical conditions did show similar improvement after the use of digitalis.

Whenever digitalis is employed in a patient in whom the therapeutic effects are not very definite, there is obviously considerable likelihood of giving either too much or too little of the drug. Thus, in the treatment of adult patients, even with the cautious administration of repeated daily doses, there is apt to be a larger number presenting either insufficient or excessive digitalization among a group of patients with a regular sinus rhythm than in a similar group with auricular fibrillation, because in the latter group the changes in the ventricular rate serve throughout as an excellent guide to the intensity of digitalis action. In those with a regular sinus rhythm in whom marked changes in the heart rate do not occur, one is compelled to rely on the improvement in the symptoms of cardiac failure. If the improvement does not occur or is delayed, one is apt to continue the administration of the drug until toxic symptoms appear before any other evidence is obtained pointing to the intensity of digitalis action.

These thoughts applied to the problem of digitalis in children help to explain the fact that digitalis is less often found to produce striking improvement and is, on the other hand, more apt to cause toxic symptoms in children than in adults. An attack of cardiac failure in an adult is frequently caused by overexertion; in the child, usually by active carditis. Digitalis produces the most striking therapeutic effects in congestive heart failure in the absence of active infection of the heart, but this condition is relatively rare in heart disease among children. If one treats a child with congestive heart failure not the result of an existing active carditis, the improvement is all that may be expected under similar conditions in an adult patient. For the relief of most other types of circulatory failure, the drug should still be employed in children as well as in adults; but in the present state of our knowledge this is to be done more on account of the theoretical indication (there being evidence of deficient circulation) and the possibility of obtaining some beneficial effects than with the expectation of marked improvement.

Digitalis is commonly employed for the purpose of preventing cardiac failure. It is firmly established that a patient who has had an attack of congestive heart failure which has been relieved by digitalis may be prevented, other conditions remaining the same, from suffering repeated attacks of failure by the more or less continuous use of the drug. Digitalis is also employed to prevent the circulatory failure of the acute infections, as in pneumonia. However, what has been stated about the use of digitalis for the relief of circulatory failure caused by acute infections also applies to its prevention. The indication for the use of digitalis in the latter conditions at the present time depends mainly on certain experimental observations and theoretical considerations rather than on clinical evidence that beneficial effects do occur.

In order to induce the full effects of digitalis by the repeated administration of small quantities it is necessary to give the next dose before the previous one has been entirely eliminated, else the intensity of action will never increase beyond that produced by the first dose. It is self-evident, therefore, that in order to digitalize a patient fully by repeated small doses it is necessary to understand the principle underlying the rate of elimination of the drug. The experiments dealing with this subject have been carried out on adult cardiac patients, but the results involve a general pharmacologic law and there is no evidence that the behavior of digitalis in children differs essentially from that in adults.

Several years ago Pardee [1] published the results of some experiments from which he concluded that adults eliminate about 2 grains (0.13 Gm.) of digitalis daily and that this does not vary with the amount of the drug present in the body. In animal experiments one of us [2]

1. Pardee, H. E. B.: Notes on Digitalis Medication: I. The Rate of Disappearance of Digitalis from the Body, J. A. M. A. **73**: 1822 (Dec. 13) 1919.
2. Gold, Harry: Digitalis Elimination, Arch. Int. Med. **32**: 779 (Nov.) 1923.

found that, while an animal could eliminate about 45 per cent of a fatal dose of a certain specimen of digitalis in twenty-four hours after 75 per cent of a fatal dose had been injected, it was unable to eliminate all in twenty-four hours when only 25 per cent of a fatal dose of this specimen was given at the beginning. It is clear, therefore, that animals eliminate not a fixed quantity of digitalis in a unit of time but a fraction of the amount present. This is in agreement with the behavior of other drugs in the animal organism. It therefore appeared to be an unusual pharmacologic phenomenon that man should excrete the same quantity of digitalis daily regardless of the amount that is given.

We [3] investigated this question in the Adult Cardiac Clinic of Bellevue Hospital in patients with auricular fibrillation. In order to determine the curve of elimination we studied the reciprocal process, namely, the curve of cumulation of the drug. It has long been known that digitalis exhibits the property of cumulation.[4] This is common to all drugs but is more in evidence with those that are slowly excreted. It has been taken to signify in part that, if a given daily dose of digitalis is not all excreted in twenty-four hours, the amount of the drug in the body will continue progressively to increase until toxic symptoms result. It has not been stated, however, so far as we are aware, that digitalis cumulation tends to be a self-limiting process; that a given dose of digitalis may show evidence of cumulation at first and later cease to show further cumulation when the same daily dose is continued. This is illustrated in the accompanying chart. In other words, as the quantity of digitalis in the body increases, the amount eliminated daily also increases until the quantity eliminated equals the daily dose; then further cumulation no longer occurs. The intensity of digitalis action present at the time that cumulation ceases depends on the size of the daily dose. This is essentially what we found in a series of about thirty tests on about twenty patients. The degree of depression of conduction, as shown by the changes in the heart rate in patients with auricular fibrillation, was employed as evidence of the intensity of digitalis action.

The results of our study showed uniformly that when the drug was withheld for weeks the ventricular rate became rapid, and when the administration of a fixed daily dose was started, progressively increasing slowing of the heart rate occurred for a time; then a level of effect was reached which was maintained unchanged for a number of weeks by the same daily dose of the drug. It is clear, therefore, that the idea that patients eliminate about 2 grains of digitalis daily with widely varying doses and under all conditions is incorrect, and that patients excrete not a fixed quantity of digitalis in a unit of time but a fraction of the amount present in the body.

These results obviously have a definite bearing on the question of digitalis dosage. In the cardiac clinic in which we treated a large number of patients with chronic heart failure and auricular fibrillation, we undertook to study the duration of the effects induced by the drug. Some of these patients received approximately 2 grains of digitalis leaf daily for two or three months, after having been fully digitalized in the hospital, and continued during this time in the optimum state of improvement and without toxic symptoms. The drug was then discontinued, and after intervals of three or four weeks the heart rate became rapid and symptoms of failure began to appear. Having been influenced at the time by the view that patients excrete about 2 grains of the drug daily, we failed to grasp the significance of the fact that in redigitalizing these patients we occasionally did not begin with large doses but with the previous maintenance dose of about 2 grains, and with the daily administration of this quantity in many cases the heart rate diminished progressively to its previous low level and satisfactory clinical improvement occurred. Eggleston's work in 1915 [5] aroused great interest in the large dose method of employing digitalis, and subsequent experience has left little doubt that full digitalization, rapidly induced by the frequent repetition of rather large doses to the point of minor toxic symptoms, frequently gives the most satisfactory results, especially in acute heart failure. It is well, however, to bear in mind that in many cases in which adequate supervision cannot be obtained for rapid digitalization, or in which the latter method may not be necessary, it is possible to produce satisfactory digitalization more slowly by the daily repetition of such doses of the drug as the patient eliminates daily after the full effects have been induced.

SUMMARY

1. Regarding the use of digitalis, it is essential to bear in mind the practical distinction between (1) types of failing circulation in which the use of the drug results in striking improvement and (2) types of failing circulation in which the use of digitalis is indicated on the basis of certain experimental data and theoretical considerations, but in which clinical study thus far gives evidence of little, if any, beneficial effect. It is pointed out that numerous errors in the interpretation of clinical observations have arisen from failure to consider this distinction.

2. There is no essential difference between the behavior of digitalis in children and in adults. The drug is less often seen to produce striking improvement in children than in adults because the type of heart failure that is relieved most effectively by digitalis (congestive heart failure without active infection of the heart) is relatively common in heart disease among adults but relatively rare in that among children. In those cases in which less definite therapeutic effects are obtained, insufficient or excessive digitalization is more apt to occur because of the absence of a satisfactory guide to the intensity of digitalis action.

3. Digitalis cumulation, as occurring in the course of the daily administration of a suitable fixed dose of the drug, can be shown to be a self-limiting process. The intensity of digitalis action present at the time when further cumulation ceases to occur depends on the size of the daily dose.

4. Experiments here cited show that, contrary to the view commonly held, a patient does not eliminate a fixed quantity of digitalis daily but a quantity that varies with the amount present in the body.

5. It is shown that the full therapeutic effects of digitalis may be induced in many cases by the daily repetition of such doses of the drug as the patient may eliminate daily after having been fully digitalized.

3. Gold, Harry; and DeGraff, A. C.: Studies on Digitalis in Ambulatory Cardiac Patients: II. The Elimination of Digitalis in Man, J. Clin. Investigation **6**: 613 (Feb.) 1929.

4. It is probable that both accumulation of drug and summation of effects—two distinct though related factors—are responsible for the manifestations of so-called cumulation of digitalis. This discussion does not take into consideration the differences in the behavior of these two factors.

5. Eggleston, Cary: Digitalis Dosage, Arch. Int. Med. **16**: 1 (July) 1915.

CALCIFICATION OF THE VESSELS IN DIABETES

A ROENTGENOGRAPHIC STUDY OF THE LEGS AND FEET *

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Since October, 1924, roentgenograms of the legs and feet of more than 500 diabetic patients of Dr. E. P. Joslin have been taken. The present study includes 324 consecutive patients varying in age from 2 to 81 years.

The legs and feet were chosen for study instead of the arms because the vessels of the legs show evidence of sclerosis earlier than those of the arms. Calcification was not always seen in the aorta even when the process was moderately advanced in the vessels of the legs, perhaps partly because of the fact that it is more difficult to detect calcification in the aorta. Dow [1] noted in a small series of complete autopsies that the vessels of the lower extremities were more frequently and completely calcified than any others except the abdominal aorta and the common iliacs.

TABLE 1.—*Incidence of Calcified Vessels in Diabetes Mellitus*

Duration of Diabetes Mellitus in Years	Decade of Present Age: 0–9 Cases	0–9 Per Cent	10–19 Cases	10–19 Per Cent	20–29 Cases	20–29 Per Cent	30–39 Cases	30–39 Per Cent	40–49 Cases	40–49 Per Cent	50–59 Cases	50–59 Per Cent	60–69 Cases	60–69 Per Cent	70–80 Cases	70–80 Per Cent	Total Cases	Total Per Cent
0–4	28	0	43	0	8	0	17	12	20	44	44	70	34	82	8	100	202	39
5–9	2	0	9	0	7	0	4	25	2	50	12	92	12	92	3	100	51	53
10–14	0	0	0	0	2	50	0	0	9	89	9	89	14	86	6	100	40	87.5
15–19	0	0	0	0	0	0	1	100	0	0	4	100	6	100	6	100	17	100
20+	0	0	0	0	0	0	0	0	4	100	7	100	2	100	1	100	14	100
Total	30	0	52	0	17	6	22	18	35	63	76	80	68	87	24	100	324	53

Care must be exercised in the detection of calcified vessels. Flecks of calcium may escape the eye unless carefully sought. One must guard against the shadows not infrequently seen in the region of the ankle which simulate a calcified vessel. These shadows are probably due to tendon sheaths. In doubtful cases a magnifying glass is a great aid.

The patients are classified according to whether the degree of calcification of their vessels was (1) slight, (2) moderate or (3) advanced. Patients whose vessels are visible for only a short distance and are not well outlined by calcium are placed in the first group. In the second group are placed patients whose vessels are outlined by calcium for a considerable portion of their course. In the third, or advanced, group are placed the patients whose large arteries are visible as an almost continuous calcium shadow and in whom at least some branches are calcified.

Beck [2] noted the value of the roentgen rays in the diagnosis of arteriosclerosis as early as 1898. His observation appears to have been of general interest since it was published both in America and in Germany. At that time the roentgen ray was used almost exclusively in surgical conditions, so that Beck's observations regarding its value in arteriosclerosis probably brought the use of the roentgen ray to the attention of many general practitioners for the first time.

Mott [3] states that in two large series of autopsies the higher percentage of arteriosclerosis was found in those persons who had bad heredity and bad habits. Sclerosis was more common in men before 50, but after 50 was equally common in women.

In 1922 Labbé and Lenfantin [4] stated that diabetic patients should be examined as a routine by means of the roentgen ray to demonstrate arterial lesions, both for diagnosis and for prognosis.

Bowen, Koenig and Viele [5] stated that their roentgen studies of diabetic patients appear to have proved that diabetes is a contributing factor in the production of arteriosclerosis.

Borchardt [6] stated that in diabetes mellitus arterial changes are marked and that diabetes is an important etiologic factor in medial degeneration of the peripheral arteries.

Joslin [7] quotes Warren as having found sclerosis post mortem in all cases of diabetes of five years' duration. He believes that arteriosclerosis in the vessels of the legs implies its existence in the heart. The blood pressure in the diabetic patient, according to Joslin, is slightly below normal up to the thirty-fifth year and then slightly above normal. The difference between the normal and the diabetic person increases as age advances.

OBSERVATIONS ON CALCIFICATION IN DIABETES

Incidence of Calcification.—In normal persons a vessel is rarely found in which calcium can be demonstrated by the x-rays before 40 years of age. In thirty normal persons from 40 to 50 years of age, the vessels of the legs were calcified in 36 per cent. In the same decade in diabetic patients, 63 per cent showed evidence of calcified vessels. The incidence of calcified vessels increases with each decade of life, as one would expect, and it also increases in each decade of diabetes. Table 1 illustrates this increase in the incidence of calcified vessels according to both age and the duration of the disease.

Degree of Calcification.—Not only does the percentage of diabetic patients who have calcified vessels increase with age and the duration of the diabetes, but the extent of the calcification increases in the same manner. Table 2 illustrates the increase in the percentage of patients with extensive calcification, but it shows that this increase is not absolutely constant either according to the duration of the disease or with the age of the patient.

Advanced Calcification.—Advanced calcification was present in sixty-eight patients, all of whom were 40 years of age or above. In 22 per cent of these sixty-eight patients with advanced calcification, pulsation was absent in one or both dorsalis pedis arteries. Pulsation in the dorsalis pedis artery was absent in only 17 per cent of patients with all degrees of calcification. No patient among the 324 patients under 50 years of age had absent pulsation in the dorsalis pedis arteries, regardless of the amount of calcification or the duration of the disease. Absent dorsalis pedis pulsations increase with age, but not according to the duration of the disease.

* From the New England Deaconess Hospital.

1. Dow, D. R.: Brit. M. J. **2**: 162 (July 25) 1925.
2. Beck, C.: New York M. J. **67**: 109, 1898; Deutsche med. Wchnschr. **7**: 4, 1898.
3. Mott, in Allbutt and Rolleston: System of Medicine, London, Macmillan Company **6**: 585, 1909.
4. Labbé, M., and Lenfantin, H.: Bull. et mém. Soc. méd. d. hôp. de Paris **48**: 522 (April 4) 1924.
5. Bowen, Koenig and Viele: Bull. Buffalo Gen. Hosp. **2**: 35, 1924.
6. Borchardt, H.: Virchows Arch. f. path. Anat. **259**: 521, 1926.
7. Joslin, E. P.: Treatment of Diabetes Mellitus, Philadelphia, Lea & Febiger, 1928, pp. 401, 402, 694.

Forty-eight of these sixty-eight patients with advanced calcification of the vessels of the legs had evidence of vascular lesions elsewhere in the body. Clinical evidence of radial sclerosis was present in thirty-nine patients. Twelve patients had coronary disease.

Gangrene was present in 29 per cent of these patients with marked calcification.

A positive diagnosis of gallstones was made in three cases and a provisional diagnosis in two other cases. If the provisional diagnosis is accepted as positive, only 7 per cent (five cases) of this group of patients have gallstones. This is a strikingly low figure for diabetic patients. Dr. E. P. Joslin's [8] statistics collected from the autopsy material at four Boston hospitals give an incidence varying from 19 to 31 per cent.

Twenty-one of these sixty-eight patients are dead (August, 1928), thirteen of vascular lesions, two of cancer, one of pulmonary tuberculosis, one of old age, one of coma, one of cellulitis of the leg, one of an infected toe, and one of a carbuncle.

The Relation of Syphilis to Calcification.—Blood Wassermann reactions were recorded in 304 patients. Seven were positive, two were doubtful, and two were negative on two occasions and positive on one occasion. If the four latter cases are included there were eleven positive Wassermann reactions. Calcification of the vessels was observed in six of these patients. One in the fourth decade did not show any evidence of calcification of the vessels. One in the fifth decade showed no calcification and one a trace. Three in the sixth decade showed no calcification and four calcification. One in the seventh decade showed calcification. The incidence of calcification was no greater in the patients with positive Wassermann reactions than in those with negative reactions.

TABLE 2.—*Percentage of Patients With Extensive Calcification According to Age and the Duration of Diabetes Mellitus*

Duration of Diabetes Mellitus in Years	Decade of Present Age			
	40–49	50–59	60–69	70–79
	Percentage	Percentage	Percentage	Percentage
0–4	5	18	35	62
5–9	50	25	33	67
10–14	0	30	29	33
15–19	0	50	67	83
20+	75	43	50	100

Dental Infections and Calcification.—In 123 cases the dental condition was recorded by the dental hygienist. Dental infections were diagnosed by means of the roentgenogram and by extraction. In patients between 50 and 59 years of age, more with calcified vessels had dental infections than those with noncalcified vessels. But in patients from 60 to 69, more without calcification had infected teeth. In this series there is no evidence that dental infection is a factor in the production of sclerosis.

Rôle of Arthritis in Calcification.—The bones of the feet and ankles were examined for evidence of arthritis. This evidence was found more frequently with advance in age. The incidence of vascular calcification is the same in the arthritic and in the nonarthritic patients in the same age group.

BLOOD PRESSURE

The patients were classified into three groups according to their blood pressures. In group 1 were placed those with a systolic pressure up to 130; in group 2 those whose pressures ranged from 130 to 150, and in group 3 those whose systolic pressures were above 150 mm. of mercury. Table 3 shows into what blood pressure group the patients with calcification of the vessels and those without evidence of calcification fall, before and after 50 years of age.

TABLE 3.—*Blood Pressure in Patients Without Calcification and in Those With Calcification of the Vessels, Before and After Fifty Years of Age*

Age	Blood Pressures			
	—130	130–150	150+	
	Percentage	Percentage	Percentage	
50—	44	40	16	Calcified
	69	20	11	Noncalcified
50+	22	23	55	Calcified
	35	35	30	Noncalcified

In patients over 50 years of age, 30 per cent without evidence of calcification and 55 per cent with evidence of calcification have blood pressures above 150. Patients with calcified vessels over 50 are therefore nearly twice as apt to have a high blood pressure as those without calcification. Blood pressure increases with age. In the fourth decade only 9 per cent of the patients fall into group 3, while in the seventh decade 61 per cent of the patients fall into the same group. Blood pressure does not increase with the duration of the disease in diabetic patients taken as a whole, in those with calcification of the vessels, or in those without calcification. Bowen, Koenig and Viele [5] in their hypertensive patients note that there is no real difference in the blood pressure in patients who have had diabetes mellitus a long or a short period. Table 4 illustrates the blood pressure according to the duration of the disease in all patients above 15 years of age.

Seventeen per cent of patients without calcification over 15 years of age and 49 per cent of those with calcification have a blood pressure above 150. The average age of those without calcification is 41 years and that of those with calcification, 59 years. Consequently the age factor overshadows the vessel calcification factor to a considerable degree.

DEGREE OF CALCIFICATION IN PATIENTS WITH DIABETES OF TEN YEARS' DURATION

Sixty-eight of the patients have had diabetes for ten years or more. Sixty-two patients, or 91 per cent, showed evidence of calcification of the vessels and 37 per cent of advanced calcification. By way of contrast, calcification was present in 53 per cent of the entire series of diabetic patients, and 21 per cent showed advanced calcification. Forty-four per cent of these patients had a blood pressure above 150, as against 39

TABLE 4.—*Blood Pressure According to the Duration of Diabetes Mellitus*

Duration of Diabetes Mellitus in Years	Blood Pressures		
	—130	130–150	150+
	Percentage	Percentage	Percentage
0–4	36	27	37
5–9	19	44	37
10–14	26	24	50
15–19	42	16	42
20+	36	28	36

8. Joslin: Treatment of Diabetes Mellitus, p. 540.

per cent of all diabetic adults. Sixteen patients, or 24 per cent, had infections or gangrenous toes.

Six patients with diabetes of ten years' duration, not showing any evidence of calcification of the vessels, varied in age from 20 to 70 years. Four of these six patients had a blood pressure below 150. None of them had gangrene. These patients with diabetes of ten years' duration and without evidence of calcification are reported on by Dr. E. P. Joslin under case numbers 653, 1893, 3496, 4530, 4976 and 5301 in his book on Treatment of Diabetes Mellitus.[9] A brief summary follows:

SUMMARY REPORTS OF CASES

CASE 653.—Rapid onset with 5.8 per cent glycosuria in a physician weighing 240 pounds (109 Kg.) in September, 1913, at the age of 53 years. Treated from the beginning with a high carbohydrate, low fat diet. Blood pressure 165 systolic in 1913 and 140 in 1927. Weight in September, 1928, 216 pounds (98 Kg.).

CASE 1893.—Indefinite onset in April, 1912, at age of 49 years. Blood pressure in May, 1928, 165 systolic. Radials showed moderate arteriosclerosis. Phenolphthalein 50 per cent. Probably a high carbohydrate diet throughout and seldom below 100 Gm. of carbohydrate.

CASE 3496.—Onset gradual in May, 1916, at age of 16 years. Christian science treatment from 1920 to 1923, followed by coma in 1923. Subsequent reduction in insulin from 75 units to 30 units with diet containing 100 Gm. of carbohydrate with reduction in total calories. Blood pressure 122 systolic, and radials normal.

CASE 4530.—Gradual onset in April, 1915, at age of 39 years. Christian science treatment from 1923 to 1925, when she had a large carbuncle. Blood pressure 164 systolic and radials normal. Discharged with diet of 65 Gm. of carbohydrate and 25 units of insulin.

CASE 4976.—Onset gradual in August, 1915, at age of 43 years. In 1926 could take 92 Gm. of carbohydrate without insulin. Blood pressure 190 systolic; radials normal.

CASE 5301.—Acute onset in September, 1916, at age of 13 years. Blood pressure 110 systolic, radials normal in June, 1926. Carbohydrate, 81 Gm.; insulin, 30 units.

GANGRENE

Twenty-two cases of gangrene are recorded. All of the patients were 40 years of age or over and thirteen had a blood pressure above 150. Eighteen had advanced calcification of the vessels of the legs. Twelve patients had absent dorsalis pedis pulsation.

PALPABLE VESSELS

Pratt and Bushnell[10] state that an artery of normal thickness and tone cannot be felt. However, an artery of normal thickness can be felt if the tone is increased, so that an artery anatomically normal may be palpable. On the other hand, arteries may not be rigid and yet may show thickening and sclerosis. Romberg asserts that one cannot consistently distinguish between thickening due to sclerosis and to tension of the wall. We have been interested in confirming these observations; namely, that palpable vessels are not necessarily calcified and that calcified vessels are not always palpable. The palpation has been done by experienced clinicians and not by the roentgenologist. A roentgenogram is therefore the only accurate method of ascertaining the presence of calcium.

We recently had a patient sent for roentgen examination of the gastro-intestinal tract in whom the examination was negative except for the presence of a large heart and sclerosis of the abdominal aorta. The finding of the sclerotic aorta was the clue that led the clinicians to consider a cardiovascular lesion as the basis of the patient's distress. The patient died within two weeks from a coronary sclerosis.

A second patient, a man, aged 80, was sent in because of a marked sclerotic condition; yet examination of the heart and the vessels of the abdomen, pelvis and legs did not reveal a trace of calcium.

9. Joslin: Treatment of Diabetes Mellitus, p. 682.
10. Pratt & Bushnell: Physical Diagnosis of Diseases of the Chest, Philadelphia, W. B. Saunders Company, 1925, p. 347.

SUMMARY

1. Roentgenographic evidence of calcification of the vessels was present in the legs in 53 per cent of 324 diabetic patients varying in age from 2 to 81 years. In the third decade 6 per cent of the patients showed vascular calcification, and in the seventh decade 87 per cent. Twenty-one per cent showed advanced calcification.

2. Advanced calcification was not found under 40 years of age, although definite calcification was present in five cases.

3. No case of gangrene was found under 40 years of age.

4. Syphilis, dental infections and arthritis appear to play no part in the production of vascular calcification in this series.

5. Seventeen per cent of patients without calcification (average age, 41 years) and 49 per cent of patients with calcification (average age, 59 years) have blood pressures over 150. Patients over 50 with sclerosis are about twice as apt to have high blood pressures as those without calcification.

6. Six, or 9 per cent, of the patients with diabetes of ten years' duration did not show calcification (Dr. E. P. Joslin's case numbers 653, 1893, 3496, 4530, 4976, 5301).

CONCLUSIONS

1. The incidence of vascular calcification increases with age and with the duration of the disease, and is higher in diabetic than in nondiabetic patients.

2. The degree of the calcification increases as a rule with age and duration.

3. The blood pressure in this series of diabetic patients increased with age but not with duration.

4. Roentgen examination is an accurate method of judging the presence of calcium in the vessel walls. It is more reliable than clinical methods in the diagnosis of vascular calcification.

5. Roentgenograms of the extremities would be helpful to insurance physicians.

6. Diabetes mellitus is an etiologic factor in the production of vascular calcification.

16 Deaconess Road.

Resistance.—The word resistance, while it embodies much, is rather vague at best. We accept the term as meaning the patient's ability to fight infections or disease. This struggle is carried on by the cell, which reacts with various defensive measures and exhibits, as Peterson puts it, a consistent effort to dilute the noxious agent, to remove it by intracellular or extracellular digestion, to neutralize it; these failing, to wall it off and put it outside the current activity. Why, then, if this is the case, do not cells overcome every disease that affects them? The most logical answer is that the cells become exhausted in their struggle and allow the disease to become chronic. It is here that protein therapy is of value in calling forth greater fighting power in the cell, stimulating it to greater activity.—Watkins, R. E.: Milk Injections in the Treatment of Pelvic Inflammatory Disease, *Northwest Med.*, February, 1929.

Clinical Notes, Suggestions and New Instruments

POSTVACCINAL ENCEPHALITIS

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EAST ST. LOUIS, ILL.

J. F., a healthy looking, well nourished, light haired boy, aged 6 years, with an unusually fair complexion, had had every appearance of vigor previous to the illness reported here. His father, aged 31, was healthy. His mother, aged 28, although apparently healthy, had had a dull pain in her chest and a slight productive cough for at least a year. The patient had one brother two years younger than himself who was well. The history of his grandparents and of collateral members of his family was not available. In his earlier years the patient had had measles and chickenpox. These did not have any evil effects. In infancy he had colitis, which left him with a tendency toward diarrhea and a susceptibility to laxatives of all kinds. The lower bowel had been infested with pinworms almost from infancy, and treatment was difficult and interrupted because of the intestinal irritability. In the winter of 1927 he had whooping cough, and although it disappared and the summer was uneventful it was noticed that in the winter of 1928 whenever he caught cold he would have a spasmodic cough. He had not previously been treated by a physician except intermittently for worms and for occasional colds. Oct. 31, 1928, he was bitten by a playful puppy, but the small wound did not cause any disturbance, and the puppy is still alive and well.

December 1, because of a threatened epidemic of smallpox, the question of vaccination arose. His mother said that he had suffered from a cold for two weeks. His lungs on this date were examined and found to be normal; his throat and nose did not present any unusual signs of disease, although there was some enlargement of the tonsils and a slight congestion of the nasal and pharyngeal mucous membrane. His temperature was normal. In view of the presence of smallpox in the schools and the fact that the boy had attended school regularly and had an unusually good appetite without any physical signs of disease, vaccination was advised and performed with fresh Mulford vaccine from their latest and most approved aseptic packages.

A slight abrasion was made over the insertion of the left deltoid. This abrasion was superficial, being about one-eighth inch in diameter; there were no deep indentations in the tissue and only the superficial layers of the skin were removed. The abrasion exuded only a slight amount of serum and there was no blood. After the vaccine was applied a loose thin piece of sterile gauze was placed over the vaccinated area with plenty of slack in it; this was held in position by a narrow adhesive strip at the upper and lower edges of the gauze. These strips did not touch or cover the vaccinated area and at no time did the gauze become adherent to the abrasion. The precautions were taken only as a routine measure and not because of any unusual condition of the patient. This gauze was renewed twice, once on December 8, and once about the 15th.

December 8, the arm was examined and a normal vesicle presented itself at the site of the vaccination. It had only a slight area of congestion immediately around it. The patient did not have fever then, but his throat was more congested and his cough more pronounced. Râles were observed in both lower lobes. From December 8, in the evening, to about December 10, the vaccinated area became somewhat larger and more inflamed and the patient's temperature ranged from 99 to 102. During this time the patient remained at home from school but did not go to bed. He complained of some headache but this was not a predominant symptom. By the 13th he seemed much improved and said that he felt much better; his temperature was normal and he appeared to be recovering from a normal vaccination. At this time most if not all of the redness had disappeared from around the vaccinated area, but there was an indentation at the vaccinated area and this was covered by a black scab somewhat larger than a 10 cent piece (18 mm.). There was no pus underneath this scab. There was no pain, little tenderness and no fever, and the vaccination appeared to have followed the usual course. The cough was not severe. This condition of the vaccinated area and of the lungs remained up to the time of the child's death.

Some time during the night of December 13 the child began to complain of severe headache, which continued till he was no longer able to express his feeling. On the 14th the temperature, pulse and respiration were normal and no signs of disease were apparent except an intense and easily observable irritability, a constant complaint of headache and a slight photophobia. By the 15th the condition had advanced. The temperature and pulse were still normal but the patient was moaning with headache. He urinated constantly but had control of the bladder. The skin and deeper structures were generally hyperesthetic. His neck was rigid, the reflexes were greatly exaggerated, and there seemed to be a spastic condition of the extremities. The bowels were constipated; the patient vomited once, possibly as a result of the administration of a laxative. He did not have any convulsions. The pupils reacted to light. There was no involvement of the motor oculi muscles. The patient was apparently deaf. There was mental lethargy but some ability to think and manifest physical distress. By the 16th the reflexes had disappeared; the lower extremities were apparently paralyzed and without sensation, and the bladder was incontinent. The neck was not so rigid; the eye muscles were still normal and the pupils reacted to light. It was never possible to get the patient to concentrate, so the pupillary reaction to accommodation could not be obtained. At this time consciousness seemed to have entirely vanished, although the patient would open his eyes from time to time and the expression of his face was intelligent. He moaned and remained with his eyes closed most of the time.

On the 17th his condition was unchanged. Examination of the urine did not show any departure from the normal. There was no pus, blood, casts, albumin, sugar, acetone or diacetic acid. Examination of the blood showed: red cells, 3,820,000; leukocytes, 13,800; the differential count was: lymphocytes, 12; large mononuclears and transitional, 7; polymorphonuclears and neutrophils, 77; eosinophils, 2; hemoglobin, 75 per cent. Spinal puncture revealed a clear fluid not under undue pressure; there was no clot formation after twenty-four hours. The cell count was 13 per cubic millimeter. A stained specimen did not show any organisms. Two large mononuclears were found to every three polymorphonuclear leukocytes. The occult blood test was negative. There was an insufficient quantity to complete sugar test. Cultures on special mediums were negative for organisms.

The patient was removed to St. Mary's Hospital, East St. Louis, on the afternoon of December 17. At that time the temperature was 97.8 F.; the pulse rate 120, and the respiration 28. He had some cough, and some moist râles were apparent throughout both lungs. The pupillary reaction to light was slightly sluggish; the occular muscles apparently were undisturbed; there was some rigidity of the neck, and movement of the neck seemed even then to cause pain. The heart was normal. The abdomen was retracted but otherwise normal. The extremities were apparently paralyzed. The Kernig and Babinski signs were negative; the reflexes were absent. At times there was a fine tremor of all the muscles; there was one convulsion soon after admission to the hospital. On the evening of December 17, all of the symptoms mentioned remained; coma became deeper; the temperature began to rise and continued steadily rising until it reached 107 at 5 p. m., December 18, when the patient died.

The following is the autopsy report of Dr. D. L. Harris, who performed the postmortem examination:

The body was well nourished and well developed. There was a healing vaccination crust on the left arm. The crust was separating from the edge and was firmly attached in the center. It had been thoroughly painted with mercurochrome. There was no evidence of an excessive inflammatory reaction around the crust. The arm was not swollen.

Examination of the chest and abdomen did not show any evidence of disease which might have in any way contributed to the cause of death. The thymus was not enlarged. There was no evidence of an inflammation of the lungs. The heart was normal.

There was no peritonitis and no evidence of any disease of the kidneys.

Examination of the brain showed a marked subdural edema with an intense engorgement of all the vessels of the meninges. In the brain itself all the vessels were congested—so much so, in fact, that after every knife cut the surface was quickly covered with droplets of blood oozing from every vessel.

There was no evidence of any purulent exudate. Bacteriologic cultures of the brain showed the presence on blood agar plates of scattering colonies of *Staphylococcus albus*. These were so few that they may hardly be regarded as evidence of an infection; they were probably due to contamination.

A thick emulsion of the brain, inoculated subdurally into rabbits, did not produce any evidence of encephalitis or meningitis. The brain emulsion rubbed on the freshly shaven skin of the young rabbit did not produce any reaction.

Microscopic examination of the brain showed an extensive and widespread leukocytic invasion around most of the blood vessels.

Bacteria could not be demonstrated in any of these foci.

513 Missouri Avenue—Murphy Building.

BLINDNESS CAUSED BY BATTERY FLUID FOLLOWING AN ACCIDENT

J. C. MCALLISTER, M.D., RIDGWAY, PA.

Mrs. B. was pinned underneath an overturned coupé in such a manner that the fluid from the battery ran into both eyes and into her mouth and throat. No first aid was given, and by the time she was admitted to the hospital both corneas were glazed white and all of the conjunctivae were of a dirty grayish brown, not having a normal appearance. Both eyes were irrigated with sterile water, followed by the use of olive oil and an ointment of mercuric chloride with atropine and the application of iced cloths to the lids for four or five hours, after which heat was substituted for the cold. There was only a moderate local reaction following the accident. The glazing of the corneas cleared up somewhat within the first few days but the bulbar conjunctivae seemed destroyed for a distance of a few millimeters from the sclerocorneal margin. After eight or ten days a necrosis of the cornea appeared near the scleral margin which necessitated the evisceration of both eyeballs.

Battery fluid is composed of one-third sulphuric acid and two-thirds water. If the specific gravity is less than about 1.3 there will be a smaller amount of free acid in the solution.

In Wurdemann's "Injuries of the Eyes," reference is made to experiments by Villard in which commercial sulphuric acid was dropped into the eyes of rabbits, which were then immediately washed under the tap. The rabbits were later killed on various days following the experiment. The results were classified under several stages of progress. Only the report of the first stage will be noted.

"The first stage is characterized by death of the cellular elements of the cornea, with the swelling of the corneal lamella similar to that which is noted in the laboratory when connective tissue is treated with acid. From the earliest hour, therefore, the cornea is deprived of active life, although it retains its shape." Wurdemann also quotes Ovio as stating that "one drop of nitric or sulphuric acid is sufficient to destroy the eye. A drop of sulphuric acid with a drop of water causes an indelible cloudiness." He cites Kramsztyk as reporting two cases of sulphuric acid burns of the eye, "in which the conjunctivae were at first much involved but the cornea clear. A few days later the cornea were broken down, the results, the author believes, of the destruction of conjunctival vessels."

It was my belief that the unfortunate result in the case reported here was due partly or largely to the destruction of the conjunctiva immediately surrounding the cornea.

The treatment as recommended in the textbook referred to is practically that outlined here. If a mild alkaline solution such as sodium bicarbonate could be used without occasioning delay in irrigating the eye, it might be better, as it would neutralize the acid as well as dilute it.

Council on Physical Therapy

THE COUNCIL ON PHYSICAL THERAPY OF THE AMERICAN MEDICAL ASSOCIATION HAS APPROVED THE FOLLOWING REPORT.

H. J. HOLMQUEST, Secretary.

X-RAY AND RADIUM PROTECTION

The Council on Physical Therapy of the American Medical Association approves the following recommendations for x-ray and radium protection, adopted at the Second International Congress of Radiology in Stockholm in July, 1928. The International Committee on X-Rays is continuing its consideration of the matter of x-ray and radium protection. Further recommendations will doubtless be published.

1. The dangers of overexposure to x-rays and radium can be avoided by the provision of adequate protection and suitable working conditions. It is the duty of those in charge of x-ray and radium departments to insure such conditions for their personnel. The known effects to be guarded against are:

(*a*) Injuries to the superficial tissues.

(*b*) Derangements of internal organs and changes in the blood.

I. WORKING HOURS

2. The following working hours are recommended for whole-time x-ray and radium workers:

(*a*) Not more than seven working hours a day.

(*b*) Not more than five working days a week. The off-days to be spent as much as possible outdoors.

(*c*) Not less than one month's holiday a year.

(*d*) Whole-time workers in hospital x-ray and radium departments should not be called on for other hospital service.

II. GENERAL X-RAY RECOMMENDATIONS

3. X-ray departments should not be situated below the ground floor level.

4. All rooms, including dark rooms, should be provided with windows affording good natural lighting and ready facilities for admitting sunshine and fresh air whenever possible.

5. All rooms should be provided with adequate exhaust ventilation capable of renewing the air of the room not less than ten times an hour. Air inlets and outlets should be arranged to afford crosswise ventilation of the room.

6. All rooms should preferably be decorated in light colors.

7. X-ray rooms should be large enough to permit a convenient layout of the equipment. A minimum floor area of 250 square feet (25 square meters) is recommended for x-ray rooms and 100 square feet (10 square meters) for dark rooms. Ceilings should not be less than 11 feet (3.5 meters) high.

8. A working temperature of about 18 C. (65 F.) is desirable in x-ray rooms.

9. Wherever practicable, the x-ray generating apparatus should be placed in a separate room from the x-ray tube.

III. X-RAY PROTECTIVE RECOMMENDATIONS

10. An x-ray operator should on no account expose himself unnecessarily to a direct beam of x-rays.

11. An operator should place himself as remote as practicable from the x-ray tube. It should not be possible for a well rested eye of normal acuity to detect

in the dark appreciable fluorescence of a screen placed in the permanent position of the operator.

12. The x-ray tube should be surrounded as completely as possible with protective material of adequate lead equivalent.

13. The following lead equivalents are recommended as adequate:

X-Rays Generated by Peak Voltages	Minimum Equivalent Thickness of Lead
Not exceeding 75 Kv.	1 mm.
Not exceeding 100 Kv.	1.5 mm.
Not exceeding 125 Kv.	2 mm.
Not exceeding 150 Kv.	2.5 mm.
Not exceeding 175 Kv.	3 mm.
Not exceeding 200 Kv.	4 mm.
Not exceeding 225 Kv.	5 mm.

14. In the case of diagnostic work, the operator should be afforded protection from scattered rays by a screen of a minimum lead equivalent of 1 mm.

15. In the case of x-ray treatment the operator is best stationed completely outside the x-ray room behind a protective wall of a minimum lead equivalent of 2 mm. This figure should be correspondingly increased if the protective value of the x-ray tube enclosure falls short of the values given in paragraph 13. In such event the remaining walls, floor and ceiling may also be required to provide supplementary protection for adjacent occupants to an extent depending on the circumstances.

16. Screening examinations should be conducted as rapidly as possible with minimum intensities and apertures.

17. The lead glass of fluorescent screens should have the protective values recommended in paragraph 13.

18. In the case of screening stands the fluorescent screen should, if necessary, be provided with a protective "surround" so that adequate protection against direct radiation is afforded for all positions of the screen and diaphragm.

19. Screening stands and couches should provide adequate arrangements for protecting the operator against scattered radiation from the patient.

20. Inspection windows in screens and walls should have protective lead values equivalent to that of the surrounding screen or wall.

21. Efficient safeguards should be adopted to avoid the omission of a metal filter in x-ray treatment.

22. Protective gloves, which should be suitably lined with fabric or other material, should have a protective value not less than 0.5 mm. of lead throughout both back and front (including fingers and wrist). Protective aprons should have a minimum lead value of 0.5 mm.

IV. ELECTRICAL PRECAUTIONS IN X-RAY ROOMS

23. The floor covering of the x-ray rooms should be of insulating material, such as wood, rubber or linoleum.

24. Overhead conductors should be not less than 9 feet (3 meters) from the floor. They should consist of stout metal tubing or other coronaless type of conductor. The associated connecting leads should be of coronaless wire kept taut by suitable rheophores.

25. Wherever possible, earthed guards should be provided to shield the more adjacent parts of the high-tension system. Unless there are reasons to the contrary, the metal parts of the apparatus and room should be efficiently earthed.

26. The use of quick acting double-pole circuit breakers is recommended. Overpowered fuses should not be used. If more than one apparatus is operated from a common generator, suitable overhead multi-way switches should be provided.

27. Some suitable form of kilovoltmeter should be provided to afford a measure of the voltage operating the x-ray tube.

V. RADIUM PROTECTIVE RECOMMENDATIONS

A. Radium Salts:

28. Protection for radium workers is required from the effects of:

(*a*) Beta rays on the hands.

(*b*) Gamma rays on the internal organs and on the vascular and reproductive systems.

29. In order to protect the hands from beta rays, reliance should be placed, in the first place, on distance. The radium should be manipulated with long-handled forceps, preferably made of wood, and should be carried from place to place in long-handled boxes, lined on all sides with about 1 cm. of lead. All manipulations should be carried out as rapidly as possible.

30. Radium, when not in use, should be stored in a safe as distant as possible from the personnel. It is recommended that radium tubes or applicators be inserted into separate lead blocks in the safe, giving a thickness of protective wall amounting to 5 cm. of lead per hundred milligrams of radium element.

31. A separate room should be provided for the "make-up" of screened tubes and applicators, and this room should be occupied only during such work.

32. In order to protect the body from the penetrating gamma rays during handling of the radium, a screen of not less than 1-inch thickness of lead should be used, and proximity to the radium should occur only during actual work and for as short a time as possible.

33. The measurement room should be a separate room and it should contain the radium only during its actual measurement.

34. Nurses and attendants should not remain in the same room as patients undergoing radium treatment.

35. All unskilled work or work that can be learned in a short period of time should preferably be carried out by temporary workers, who should be engaged on such work for periods not exceeding six months. This applies especially to nurses and those engaged in "making-up" applicators.

36. Discretion should be exercised in transmitting radium salts by post. In the case of small quantities it is recommended that the container should be lined throughout with lead not less than 3 mm. thick. It is more satisfactory to transport large quantities by hand in a suitably designed carrying case.

B. Emanation (Radon):

37. In the manipulation of emanation, protection against the beta and gamma rays has likewise to be provided.

38. The handling of emanation should be carried out, as far as possible, during its relatively inactive state.

39. The escape of emanation should be very carefully guarded against, and the room in which it is prepared should be provided with an exhaust fan.

40. Where emanation is likely to come in direct contact with the fingers, thin rubber gloves should be worn to avoid contamination of the hands with active deposit. Otherwise, the protective measure recommended for radium salts should be carried out.

41. A separate pumping room should be provided with a connecting tube from the special room in which the radium is stored in solution. The radium in solution should be heavily screened to protect people working in adjacent rooms. This is preferably done by placing the radium in solution in a lead-lined box, the thickness of lead recommended being according to the accompanying table.

Quantity of Radium Element	Thickness of Lead
0.5 Gm.	6.0 inches (15 cm.)
1.0 Gm.	6.6 inches (16.5 cm.)
1.5 Gm.	6.8 inches (17 cm.)
2.0 Gm.	7.2 inches (18 cm.)

Council on Pharmacy and Chemistry

ANNUAL MEETING OF THE COUNCIL ON PHARMACY AND CHEMISTRY

The Council on Pharmacy and Chemistry of the American Medical Association held its annual meeting at the headquarters building, 535 North Dearborn Street, Chicago, Friday and Saturday, April 5 and 6. The following members were present:

Reid Hunt, chairman of the Council, professor of pharmacology, Medical School of Harvard University.

Torald Sollmann, vice chairman of the Council, professor of pharmacology and materia medica, Western Reserve University School of Medicine.

W. A. Puckner, secretary of the Council.

A. J. Carlson, professor of physiology, University of Chicago.

C. W. Edmunds, professor of materia medica and therapeutics, University of Michigan Medical School.

Morris Fishbein, editor of THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

Ernest E. Irons, clinical professor of medicine, Rush Medical College.

G. W. McCoy, director of the Hygienic Laboratory, United States Public Health Service.

Lafayette B. Mendel, professor of physiologic chemistry, Yale University.

McKim Marriott, professor of pediatrics, Washington University School of Medicine.

F. G. Novy, professor of bacteriology, University of Michigan Medical School.

W. W. Palmer, Bard professor of medicine, Columbia University College of Physicians and Surgeons.

G. H. Simmons, editor emeritus of THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

Telegrams of regret were sent to Drs. Eugene F. Du Bois, R. A. Hatcher, W. T. Longcope and L. G. Rowntree, who were compelled to be absent from the meeting.

The discussions had to do with various problems of a general nature that have come up in the Council's routine work of determining the acceptability of preparations for inclusion in New and Nonofficial Remedies. The discussions also touched on questions concerning some specific products. Among the subjects considered, those of especial interest to the medical profession were:

Nonmedicinal Foods.—The Board of Trustees having requested that a special committee of the Council be appointed to pass on the food products offered for advertising in the publications of the Association, the Council considered plans and methods of procedure for the work of such a committee. The Council voted that the chairman, with the concurrence of the Council, appoint a committee of five which shall be empowered to pass on the worth of and the claims made for the products to be considered.

Serum Treatment of Pneumonia.—The Council discussed the rationality of a preparation combining type I and type II pneumococci in a serum for treatment of pneumonia. The Council requested the referee for serums and vaccines to prepare a report on the present status of the serum treatment of pneumonia.

Ergot Importations.—The Council considered certain allegations that inferior and unfit ergot is being imported and used for the preparation of the pharmacopeial fluidextract. No evidence of untoward effects from the present use of fluidextract of ergot was available, and official government assurances were presented that, since Sept. 1, 1927, ergot had not been imported which did not in fact meet satisfactorily the pharmacopeial requirements. It was decided that no report on this matter is required on the part of the Council at this time.

Scarlet Fever Immunization.—The attention of the Council has been brought to the apparent failure of the methods and preparations used for immunization in a recent outbreak of scarlet fever. The Council asked its referee for scarlet fever immunization products to investigate the present status of such preparations accepted for New and Nonofficial Remedies and to report on the desirability of retaining or rejecting them.

Streptococcus Preparations for Treatment of Rheumatic Fever.—The Council has under consideration certain streptococcus preparations for the treatment of rheumatic fever made in accordance with the published method of Dr. J. C. Small. The Council had previously decided that the evidence for the usefulness of these preparations was insufficient to justify their inclusion in New and Nonofficial Remedies. In the present discussion the experimental status of the products was brought out. It was the consensus that, while the products are suitable for controlled investigation by qualified experimental workers, propaganda which invites their use by the medical profession in general is not justified at this time.

Dangers of Treatment with Serums.—The attention of the Council was called to the need for a statement concerning the dangers inherent in the use of serum therapy (especially with regard to dangers of protein sensitization) and concerning methods of preventing these dangers. It was decided to prepare a report on this question for publication in THE JOURNAL.

The Advertising of "Patent Medicines."—The Council listened to a report by Dr. Arthur J. Cramp, director of the Association's Bureau of Investigation, in which it was brought out that the present advertising of "patent medicines" has not increased in bulk but that there is an increase in the size of the advertisements used, which, through the large revenue to be derived, is a strong temptation to laxity on the part of newspapers in accepting objectionable copy. Particular attention was called to the full page advertisements for "patent medicines" which are offered to leading metropolitan papers by the so-called chain drug stores. Dr. Cramp pointed out an increase in the number of "patent medicines" containing narcotics but was of the opinion that the American public is less reliant on "patent medicines" than in former years.

Lay Advertising of Laxatives.—The Council discussed the wisdom of permitting under certain restrictions the advertising to the laity of liquid petrolatum and simple preparations of liquid petrolatum, of agar and simple preparations of agar, and of similar preparations which act because of their bulk. It was held that the original recommendation for the use of laxatives should come from the physician, but the value of educational advertising for such products was pointed out. The Council postponed action on this question.

Natural Mineral Waters.—The Council has not thus far undertaken to pass on natural mineral waters. It was decided to appoint a committee to report on the desirability and feasibility of the Council's undertaking this work.

Americans and Success.—Success in a business or profession is due to applied skill, energy and endurance. Two of these three qualities most assuredly depend upon health. The care of the human body therefore is the most essential element in success in any line of work. Though Americans are the most successful people in the world, they have yet much to learn about efficiency, and particularly in its relationship to personal hygiene. The criticism of Europeans that "Americans know how to work but do not know how to play" applies to many of us.—Harris, Seale: The Business of Keeping Well, *Virginia M. Monthly*, January, 1929.

STATE BOARD STATISTICS FOR 1928

ANNUAL PRESENTATION BY THE COUNCIL ON MEDICAL EDUCATION AND HOSPITALS OF THE AMERICAN MEDICAL ASSOCIATION OF RESULTS OF STATE BOARD EXAMINATIONS

On pages 1432 to 1435 will be found table A, which gives in detail the results of the various state medical license examinations held during 1928. All state boards sent in reports, and the statistics are complete. The majority of graduates take the examination in the state in which the college is located, as shown by the dark diagonal zone of figures passing from the upper left to the lower right corner of the table. The marginal numbers enable one to follow readily the line for any college.

GRADUATES EXAMINED IN 1928

Table A shows the results for all candidates who took the examinations in 1928 and shows that 5,538 candidates were examined, or eighty-three more than in 1927. Since 1906 and until 1919, the decrease in the totals examined occurred chiefly because of the general reorganization of medical education. Since 1918, however, there has been a constant increase, except in 1922, when the smaller war class graduated. Since 1922 there has been a general increase until the last three years. Of the 5,538 examined in 1928, 368, or 6.4 per cent, failed, as compared with 387, or 7.1 per cent, in 1927.

There were sixty-three medical colleges in the United States granting degrees in 1928 which had graduates examined. In 1905, graduates from 153 medical schools were examined. The statistics regarding schools that have ceased to exist are included in the line for "miscellaneous colleges."

In 1928, the Council on Medical Education and Hospitals voted to refuse to recognize further as medical colleges the four institutions which still existed and were rated in class C. This ruling applies to the

Chicago Medical School.
College of Physicians and Surgeons, Boston.
Middlesex College of Medicine and Surgery, Cambridge, Mass.
Kansas City University of Physicians and Surgeons.

The charters of two other class C institutions,

Kansas City College of Medicine and Surgery, and
St. Louis College of Physicians and Surgeons,

were revoked by court action, respectively, June 23, 1926, and May 23, 1927, for having been convicted of selling diplomas.

Two other institutions were chartered evidently as substitutes for those whose charters were revoked, these being the

American Medical University and
Missouri College of Medicine and Science.

From such information as has been obtained, these institutions apparently are being conducted in the same manner, if not also by the same individuals, as their predecessors, so that the Council has refused to recognize them as medical schools. Meanwhile, official reports from licensing boards indicate that diplomas of these six institutions have been refused recognition in forty-six states and the territory of Alaska.

APPLICANTS EXAMINED FROM CANADA AND ABROAD

Graduates of Canadian medical schools were examined last year in thirty-two states. Last year 278 were examined, as compared with 255 in 1927, 305 in 1926 and 319 in 1925. The largest number, sixty-seven, were examined in New York, the next largest number being fifty-two examined in Michigan. The figures for each college are given so as to show the successes and failures of its graduates at the examinations. Of the 278 candidates examined, only twenty, or 7.2 per cent, failed.

The number of foreign physicians seeking licensure in the United States has steadily increased since the World War, up to 1926, but in 1927 and 1928 the number, exclusive of those from Canada, was decreased from 330 to 188. Of the 188 examined in 1928, ninety-one, or 48.4 per cent, failed. This year, foreign graduates were examined in twenty-three states, the largest number, eighty, being examined in New York, of whom forty-four, or 55.0 per cent, failed. From all foreign countries, including Canada, 466 candidates were examined, of whom 111, or 23.8 per cent, failed. As shown in table 1, the number of applicants from foreign countries has rapidly increased since the conclusion of the World War, but has decreased during the last three years.

TABLE 1.—*Foreign Physicians Examined*

	Canada			Other Foreign Graduates			Totals		
Year	Examined	Failed	Per Cent	Examined	Failed	Per Cent	Examined	Failed	Per Cent
1917.....	34	8	23.5	79	37	46.8	113	45	39.8
1918.....	29	10	34.5	45	17	37.8	74	27	36.5
1919.....	71	22	31.0	67	30	44.8	138	52	37.7
1920.....	85	21	24.7	86	33	38.4	171	54	31.6
1921.....	84	20	23.8	178	77	43.2	262	97	33.2
1922.....	73	9	12.3	186	76	40.9	259	85	32.4
1923.....	140	17	12.1	371	165	44.5	511	182	35.6
1924.....	212	14	6.6	591	231	39.1	803	245	30.5
1925.....	319	27	8.5	523	205	39.2	842	232	27.6
1926.....	305	18	5.9	330	134	40.6	635	152	23.9
1927.....	255	24	9.3	281	111	39.6	536	135	25.1
1928.....	278	20	7.2	188	91	48.4	466	111	23.8
Totals..	1,885	210	11.1	2,925	1,207	41.3	4,810	1,417	29.5

UNDERGRADUATES AND OSTEOPATHS EXAMINED AS PHYSICIANS DURING 1928

For the last ten years, the few undergraduates examined have been accidental or are exceptional instances. In 1928 only three were licensed. The door is now carefully closed, therefore, against the licensing of those whose medical training is known to be incomplete.

Boards in four states, however, registered as physicians and surgeons, by examination or reciprocity, 138 graduates of osteopathic colleges, which, if measured by the same standards as medical schools, could be graded only low in class C, as the teachers, with an occasional exception, have not had a training in medicine or in differential diagnosis, and therefore are not qualified to instruct others in the essentials of the healing art. Of these, ninety-five were licensed in California under the medical practice law by the separate osteopathic board, while twenty-seven were licensed in Massachusetts, twelve in Colorado and four in Texas by the single boards of medical examiners.

(CONTINUED ON PAGE 1434)

Marginal Number	NAME OF COLLEGE	1 Alabama P	1 Alabama F	2 Arizona P	2 Arizona F	3 Arkansas P	3 Arkansas F	4 California P	4 California F	5 Colorado P	5 Colorado F	6 Connecticut P	6 Connecticut F	7 Delaware P	7 Delaware F	8 Dist. Columbia P	8 Dist. Columbia F	9 Florida P	9 Florida F	10 Georgia P	10 Georgia F	11 Idaho P	11 Idaho F	12 Illinois P	12 Illinois F	13 Indiana P	13 Indiana F	14 Iowa P	14 Iowa F	15 Kansas P	15 Kansas F	16 Kentucky P	16 Kentucky F	17 Louisiana P	17 Louisiana F	18 Maine P	18 Maine F	19 Maryland P	19 Maryland F	20 Massachusetts P	20 Massachusetts F	21 Michigan P	21 Michigan F	22 Minnesota P	22 Minnesota F	Marginal Number
	ARKANSAS																																													
1	University of Arkansas School of Medicine	1	0			29	0	2	1																									1	0											1
	CALIFORNIA																																													
2	College of Medical Evangelists			1	0			39	0							1	0	1	0					1	0													1	0			1	0			2
3	Stanford University School of Medicine							39	0																																					3
4	University of California Medical School							45	1																																	1	0			4
	COLORADO																																													
5	University of Colorado School of Medicine							4	0	34	1					1	0							1	0									1	0									1	0	5
	CONNECTICUT																																													
6	Yale University School of Medicine							1	0			16	0	2	0	1	0																			1	0	2	0	1	0	2	0			6
	DISTRICT OF COLUMBIA																																													
7	Georgetown University School of Medicine							1	0			1	0			22	0																	1	0			2	1					1	0	7
8	George Washington University Medical School							2	0					1	0	30	0																					7	0							8
9	Howard University School of Medicine	2	0	1	0			0	1			3	0			29	0	3	0					3	0					1	0			1	0			3	1			2	0			9
	GEORGIA																																													
10	Emory University School of Medicine	7	0															13	0	49	0													1	0									1	0	10
11	University of Georgia Medical Department																	7	0	36	0			0	1																					11
	ILLINOIS																																													
12	Loyola University School of Medicine							4	0															44	2	1	0															5	0			12
13	Northwestern University Medical School			1	0			10	1									1	0			2	0	48	0	1	0	4	0					2	0	1	0	1	0			12	0	4	0	13
14	University of Chicago, Rush Medical College	2	0					18	0	3	0					1	0	3	0			1	0	97	0					2	0					1	0					3	0	1	0	14
15	University of Illinois College of Medicine			2	0			8	0									1	0					74	1	1	0							1	0							1	0	2	0	15
	INDIANA																																													
16	Indiana University School of Medicine							1	1			1	0					1	0					2	0	88	0							1	0											16
	IOWA																																													
17	State University of Iowa College of Medicine							5	0													2	0					94	0											3	0			5	0	17
	KANSAS																																													
18	University of Kansas School of Medicine			1	0	1	0	2	0																			1	0	32	0															18
	KENTUCKY																																													
19	University of Louisville School of Medicine	1	0					1	0																							60	0	3	0					1	0			1	0	19
	LOUISIANA																																													
20	Tulane University of Louisiana School of Medicine	1	0			1	0	1	0									5	0											1	0			72	0							2	0			20
	MARYLAND																																													
21	Johns Hopkins University School of Medicine	2	0	1	0			1	0			1	0	1	0	4	0							1	0			1	0	1	0			1	0			43	0	3	0			2	0	21
22	Univ. of Md. School of Med. and Coll. of P. and S.	2	0					1	0			1	0					1	0															1	0			48	1	1	0			1	0	22
	MASSACHUSETTS																																													
23	Boston University School of Medicine											2	1																									6	0			28	1	1	0	1	0	23
24	Harvard University Medical School			1	0			13	0	1	0	6	0			1	0	1	0	2	0			3	0					1	0	1	0					4	0			21	0	5	0	2	0	24
25	Tufts College Medical School							3	0			14	1																									6	0			70	2	1	0			25
	MICHIGAN																																													
26	University of Michigan Medical School							2	0							1	0	1	0							1	0													3	0	102	0	6	0	26
27	Detroit College of Medicine and Surgery							1	0																													1	0			48	1			27
	MINNESOTA																																													
28	University of Minnesota Medical School							5	0																																			90	0	28
	MISSOURI																																													
29	St. Louis University School of Medicine			1	0			8	0			0	1					3	0					5	1	1	0													1	0	1	0	2	0	29
30	Washington University School of Medicine							3	0	1	0					2	0	1	0					5	0					1	0			1	0			1	0			1	0	2	0	30
	NEBRASKA																																													
31	Creighton University School of Medicine			1	0			9	1	1	0													2	0			3	0	3	0											1	0	3	0	31
32	University of Nebraska College of Medicine							3	0															1	0			2	0	4	0											3	0	1	0	32
	NEW YORK																																													
33	Albany Medical College																																													33
34	University of Buffalo School of Medicine							1	0									1	0																											34
35	Columbia University College of Phys. and Surgs.	1	0					1	0			3	0					2	0									1	0													2	0			35
36	Cornell University Medical College											1	0																																	36
37	Long Island College Hospital							1	0			1	0					0	1																	1	0					1	0			37
38	New York Homeo. Med. Coll. and Flower Hospital																	1	0																											38
39	University and Bellevue Hospital Medical College																							1	0																					39
40	Syracuse University College of Medicine																																										1	0			40
	OHIO																																													
41	Eclectic Medical College			1	0											1	0							1	0	5	0					6	0							1	0					41
42	University of Cincinnati College of Medicine											1	0																					5	0											42
43	Western Reserve University School of Medicine			1	0																																			1	0					43
44	Ohio State University College of Medicine							1	0									1	0																											44
	OKLAHOMA																																													
45	University of Oklahoma School of Medicine																							1	0																					45
	OREGON																																													
46	University of Oregon Medical School							11	0							1	0											1	0													2	0			46
	PENNSYLVANIA																																													
47	Hahnemann Medical College and Hospital of Phila.																									1	0																			47
48	Jefferson Medical College of Philadelphia							9	0			2	0	2	0	1	0	2	0					2	0	1	0									1	0	1	0	1	0	1	0	1	0	48
49	Temple University School of Medicine													1	0			1	0															1	0											49
50	University of Pennsylvania School of Medicine	2	0					4	0	1	0	2	0	1	0	1	0							1	0											1	0			3	0			6	0	50
51	Woman's Medical College of Pennsylvania							2	0					1	0											1	0													1	0					51
52	University of Pittsburgh School of Medicine							2	1															1	0																			1	0			52
	SOUTH CAROLINA																																														
53	Medical College of the State of South Carolina	1	0															2	0	1	0															1	0									53
	TENNESSEE																																													
54	University of Tennessee College of Medicine	1	0			2	0									2	0	1	0															3	0					2	0					54
55	Meharry Medical College					1	0													2	0			0	1					1	0			5	0					0	1	2	0			55
56	Vanderbilt University School of Medicine	1	0					2	0							1	0	2	0															2	0											56
	TEXAS																																													
57	Baylor University College of Medicine							2	0															1	0																					57
58	University of Texas School of Medicine																																											1	0	58
	VERMONT																																													
59	University of Vermont College of Medicine											6	0																											3	0					59
		1		2		3		4		5		6		7		8		9		10		11		12		13		14		15		16		17		18		19		20		21		22		

P = Passed; F = Failed.

| Marginal Number | 23 Mississippi | | 24 Missouri | | 25 Montana | | 26 Nebraska | | 27 Nevada | | 28 New Hampshire | | 29 New Jersey | | 30 New Mexico | | 31 New York | | 32 North Carolina | | 33 North Dakota | | 34 Ohio | | 35 Oklahoma | | 36 Oregon | | 37 Pennsylvania | | 38 Rhode Island | | 39 South Carolina | | 40 South Dakota | | 41 Tennessee | | 42 Texas | | 43 Utah | | 44 Vermont | | 45 Virginia | | 46 Washington | | 47 West Virginia | | 48 Wisconsin | | 49 Wyoming | | 50 U. S. Territories and Possessions | | Totals | Examined—Passed | Examined—Failed | Percentage of Failures | No. States Exam. in | Marginal Number |
|---|---|---

Marginal Number	NAME OF COLLEGE	1 Alabama		2 Arizona		3 Arkansas		4 California		5 Colorado		6 Connecticut		7 Delaware		8 Dist. Columbia		9 Florida		10 Georgia		11 Idaho		12 Illinois		13 Indiana		14 Iowa		15 Kansas		16 Kentucky		17 Louisiana		18 Maine		19 Maryland		20 Massachusetts		21 Michigan		22 Minnesota		Marginal Number
		P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	
	VIRGINIA																																												
60	Medical College of Virginia	..	..	..	..	..	..	..	..	..	..	1	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	0	..	..	..	..	0	1	..	..	..	..	1	0	60
61	University of Virginia Department of Medicine	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	0	..	..	..	..	..	..	1	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	0	..	..	3	0	61
	WISCONSIN																																											
62	University of Wisconsin Medical School	..	..	..	..	..	..	1	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	0	..	..	62
63	Marquette University School of Medicine	..	..	..	..	..	..	2	0	..	..	..	..	..	..	..	..	1	0	..	..	..	..	2	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	0	3	0	63
	PHILIPPINE ISLANDS																																											
64	University of Philippines, Coll. of Med. and Surg.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	64
65	University of St. Thomas, Coll. of Med. and Surg.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	65
	CANADA																																											
66	University of Alberta Faculty of Medicine	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	66
67	Dalhousie University Faculty of Medicine	1	0	..	..	..	..	..	..	..	..	1	0	..	..	..	..	..	..	..	..	..	..	5	0	..	..	..	..	..	..	..	..	..	..	..	..	1	0	3	0	..	..	2	0	67
68	Queen's University Faculty of Medicine	..	..	..	..	..	..	1	1	..	..	1	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	0	..	..	1	0	..	..	4	0	1	0	68
69	University of Toronto Faculty of Medicine	..	..	..	..	..	..	4	0	..	..	0	1	..	..	..	..	..	..	..	..	..	..	3	1	1	0	..	..	..	..	..	..	..	..	..	..	2	0	1	0	19	0	..	..	69
70	University of Western Ontario Medical School	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	0	21	0	2	0	70
71	McGill University Faculty of Medicine	..	..	..	..	..	..	9	0	..	..	1	0	1	0	..	..	..	..	..	..	..	..	1	0	..	..	..	..	..	..	1	0	..	..	..	..	5	0	..	..	2	0	7	0	1	0	71
72	University of Montreal Medical Faculty	..	..	..	..	..	..	..	..	..	..	2	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	0	1	0	5	7	..	..	..	..	72
73	Laval University Faculty of Medicine	..	..	..	..	..	..	..	..	1	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	0	..	..	1	1	..	..	..	..	73
74	University of Manitoba Faculty of Medicine	..	..	1	0	..	..	1	0	..	..	..	..	..	..	..	..	..	..	1	0	..	..	2	0	..	..	1	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	0	4	0	74
75	Foreign Colleges	..	..	..	..	..	..	7	16	1	0	..	..	..	..	1	0	2	1	..	..	..	..	4	12	..	..	2	1	..	..	..	..	1	0	0	1	2	0	3	5	2	1	..	..	75
76	Miscellaneous Medical Colleges	..	..	0	1	8	0	0	2	..	..	0	1	..	..	..	..	13	1	..	..	0	1	1	4	1	0	..	..	5	0	1	0	4	1	..	..	..	..	1	1	..	..	..	..	76
77	Undergraduates and Graduates of Nondescript Coll.	..	..	0	1	..	..	96	0	23	14	..	..	..	..	1	0	1	0	..	..	..	..	30	7	..	..	..	..	..	..	..	..	1	0	..	..	..	..	..	..	57	73	..	..	77
78	Totals by states	25		15		42		391		81		72		10		104		75		91		6		374		103		111		53		76		108		30		120		312		255		156		78
79	Totals—Examined—Passed	25		13		42		371		66		67		10		104		72		91		5		344		103		110		53		76		107		29		116		221		253		156		79
80	Totals—Examined—Failed	0		2		0		20		15		5		0		0		3		0		1		30		0		1		0		0		1		1		4		91		2		0		80
81	Percentage of Failures	0.0		13.3		0.0		5.1		18.5		6.9		0.0		0.0		4.0		0.0		16.7		8.0		0.0		0.9		0.0		0.0		0.9		3.3		3.7		29.2		0.8		0.6		81
		1		2		3		4		5		6		7		8		9		10		11		12		13		14		15		16		17		18		19		20		21		22		

P = Passed; F = Failed.

(CONTINUED FROM PAGE 1431)

This year 131 applicants were examined who claimed graduation from the six institutions formerly rated in class C but reported as not recognized by the licensing boards in forty-six states and which the Council on Medical Education and Hospitals now believes are unworthy of recognition as medical schools. Of these graduates, fifty-four, or 41.2 per cent, failed.

The total numbers of undergraduates and graduates of nondescript colleges licensed during the last ten years, from 1919 to 1928, inclusive, are shown in table 2. The largest number examined in any state was 422 in Massachusetts, followed by 396 in California, 215 in Colorado, thirty-eight in Texas, and thirty-five in Connecticut. Of these five states the highest failure percentage was in Massachusetts with 54.0,

TABLE 2.—*Graduates of Nondescript Colleges and Undergraduates Licensed in Ten Years*

	1919		1920		1921		1922		1923		1924		1925		1926		1927		1928		Total Examined	Total Registered	Total Failed	Percentage Failed
	Examined	Registered	Examined	Registered	Examined	Registered	Examined	Registered	Examined	Registered	Examined	Registered	Examined	Registered	Examined	Registered	Examined	Registered	Examined	Registered				
Alabama	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	0	0.0
Arizona	1	1	..	..	..	..	..	..	..	..	..	..	1	1	..	..	..	..	1	0	3	2	1	33.3
Arkansas	..	..	..	..	..	..	..	..	..	..	1	1	1	1	4	4	..	..	1	1	7	7	0	0.0
California	28	13	27	12	32	25	66	32	..	..	1	0	..	..	57	47	88	88	97	97	396	314	82	20.7
Colorado	27	16	34	17	17	13	15	8	18	10	8	8	11	4	24	14	24	15	37	23	215	128	87	40.5
Connecticut	..	..	..	..	..	..	35	25	..	..	..	..	..	..	..	..	..	..	..	..	35	25	10	28.6
Dist. Columbia	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..	1	1	2	2	0	0.0
Florida	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	1	1	0	0.0
Illinois	..	..	..	..	..	..	..	..	1	0	2	0	1	0	..	..	..	..	37	30	41	30	11	26.9
Kansas	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	1	1	0	0.0
Kentucky	..	..	..	..	..	..	..	..	1	1	..	..	1	1	1	0	..	..	2	2	5	4	1	20.0
Massachusetts	19	4	23	7	24	8	19	13	36	26	17	15	35	13	61	26	58	25	130	57	422	194	228	54.0
Michigan	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..	1	1	2	2	0	0.0
Mississippi	..	..	..	..	..	..	1	1	..	..	..	..	2	2	3	1	1	1	1	1	8	6	2	25.0
Missouri	..	..	..	..	..	..	4	1	..	..	..	..	..	..	..	..	..	..	..	..	4	1	3	75.0
Nevada	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	1	2	1	1	50.0
New Hampshire	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	0	0.0
New York	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	1	1	0	0.0
North Carolina	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	.	..	1	1	0	0.0
Ohio	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	1	1	0	0.0
Oklahoma	..	..	2	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	2	0	0.0
Oregon	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	1	1	2	2	0	0.0
Tennessee	1	1	..	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	1	1	3	3	0	0.0
Texas	1	1	..	..	3	3	2	2	1	1	3	2	8	5	6	3	7	6	7	4	38	27	11	28.9
Utah	..	..	2	2	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	3	0	0.0
Washington	2	2	..	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	1	0	4	3	1	25.0
West Virginia	5	0	..	..	1	0	1	0	1	0	..	..	..	..	..	..	4	4	..	..	12	4	8	66.7
Wisconsin	..	..	..	..	6	5	1	1	..	..	..	..	2	2	..	..	..	..	..	..	9	8	1	11.1
Wyoming	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	0	0.0
U. S. Possessions	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	1	1	0	0.0
Totals	85	39	88	40	88	59	144	83	58	38	34	28	62	29	158	97	182	139	325	225	1,224	777	447	36.5
Rejected	46		48		29		61		20		6		33		61		43		100					

Marginal Number	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50						
	Mississippi	Missouri	Montana	Nebraska	Nevada	New Hampshire	New Jersey	New Mexico	New York	North Carolina	North Dakota	Ohio	Oklahoma	Oregon	Pennsylvania	Rhode Island	South Carolina	South Dakota	Tennessee	Texas	Utah	Vermont	Virginia	Washington	West Virginia	Wisconsin	Wyoming	U. S. Territories and Possessions	Totals	Examined—Passed	Examined—Failed	Percentage of Failures	No. States Exam. in	Marginal Number
	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F						
60					1 0				9 0	11 0		1 0			1 0								72 0	1 0	10 0				110	109	1	0.9	12	60
61	1 0	1 0							13 0	2 0							1 0		1 0				21 0					1 0	48	48	0	0.0	12	61
62		1 0																								13 0			17	17	0	0.0	4	62
63		1 0							3 0		1 0	3 0												1 0		40 0		1 0	60	60	0	0.0	12	63
64																												29 0	29	29	0	0.0	1	64
65																												72 15	87	72	15	17.2	1	65
66									1 0																				1	1	0	0.0	1	66
67									3 0																				16	16	0	0.0	7	67
68							1 0		11 1			2 0			1 0				2 0				2 0			2 0			32	30	2	6.2	13	68
69			1 0				2 0		16 1			7 0		1 0	14 0							1 0		2 0					77	74	3	3.9	15	69
70									2 0			2 0																	28	28	0	0.0	5	70
71		1 0					1 1		29 3		0 1	3 0	2 0	1 0	3 0							3 0	1 0	1 0				1 0	79	74	5	6.3	21	71
72							3 0								1 0	0 1													21	13	8	38.1	7	72
73																													4	3	1	25.0	3	73
74		1 0									4 0			1 1										2 0					20	19	1	5.0	11	74
75		0 1	0 1		0 1		3 3		36 44			0 1			6 0	2 1				14 1		2 0				1 1		8 6	188	97	91	48.4	23	75
76		1 0			2 1			0 1						1 0	2 0			1 0	1 0									2 2	60	44	16	25.4	19	76
77	1 0				1 1							1 0							1 0	4 3				0 1				1 0	318	218	100	31.4	14	77
78	24	106	13	71	9	1	65	1	958	73	15	296	54	38	380	28	46	12	129	146	4	31	105	36	41	73	1	172	5538	....	....	.....	...	78
79	24	105	12	69	6	1	60	0	835	69	14	288	54	34	375	25	46	12	129	141	4	31	105	35	40	72	1	149	....	5170	....	.....	...	79
80	0	1	1	2	3	0	5	1	123	4	1	8	0	4	5	3	0	0	0	5	0	0	0	1	1	1	0	23	....	....	368	.....	...	80
81	0.0	0.9	7.7	2.8	33.3	0.0	7.7	100.0	12.8	5.5	6.7	2.7	0.0	10.5	1.3	10.7	0.0	0.0	0.0	3.4	0.0	0.0	0.0	2.8	2.4	1.4	0.0	13.4	....	....	....	6.4	..	81
	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50						

followed by Colorado with 40.5, Texas with 28.9, and California with 20.7. In California the percentage of failures is lower than last year, when it was 31.9. The average failure percentage in all states for this type of candidate was only 36.5, as compared with 38.2 in 1927. Altogether, 1,224 were examined, of whom 777 were licensed and 447 rejected. In brief, every candidate of this type has nearly three chances out of five of securing a license in this country.

RECENT GRADUATES EXAMINED DURING 1928

Table B gives the total results not only for the graduates for all years but also (second column) the graduates of 1924 to 1928, inclusive, who were examined during 1928. This column refers to recent graduates and is the fairest basis for comparison between colleges. Of all candidates examined in 1928, 4,785, or 87.9 per cent, were recent graduates, and of this number 3.1 per cent failed, as compared with 6.8 per cent for all candidates.

OLD PRACTITIONERS EXAMINED DURING 1928

Table B shows also (column three) for comparison the results for graduates of 1923 and previous years and for graduates of 1928 (fourth column). Of the graduates of 1923 and previous years—"old practitioners"—435 were examined, and of this number 120, or 27.6 per cent, failed. The numbers of these candidates are gradually being diminished as state licensing boards extend their provisions for reciprocity, or more generally endorse, without further examination, licenses granted by other states or certificates of the National Board of Medical Examiners. As a rule, states that have limited or no reciprocal relations with other states examine larger numbers of old practitioners. For example, New York, which has limited reciprocal relations, examined ninety-four such candidates and licensed only forty-six (48.9 per cent).

GRADUATES OF 1928 EXAMINED DURING 1928

Of the graduates of 1928 who were examined during the year by the state boards, as shown in table B, 3,169, or 58.2 per cent of all candidates examined during the year, graduated in 1928, including forty-seven who graduated from Canadian medical colleges. Educational statistics show that the medical colleges of the United States graduated 4,262 students last year, and 3,118, or 73 per cent, took examinations for licenses during the year. Thirteen states require graduates to have served as hospital interns before they can secure licenses, and in other states graduates can serve as interns in hospitals without first securing licenses, which accounts for some of the remaining 27 per cent. Of the graduates of 1928 examined last year, sixty-two, or 2.0 per cent, failed.

HOUSECLEANING IN LICENSURE

In Connecticut the licensing of unusually large numbers of graduates of low grade or nonexisting medical schools in 1922 and 1923 was shown by the licensure statistics published in THE JOURNAL, April 28, 1923. In June of the same year the commissioner of health of Connecticut began a housecleaning which resulted in the revocation of 176 licenses on the ground that they were obtained illegally. Most of these have been forced by the courts to cease practice in the state, and the qualifications of those who were permitted to continue in practice seemed to justify that decision.

A new practice law, also, was enacted creating a board governing the healing arts which has established in Connecticut a permanent safeguard against the licensing of unfit physicians. The effect of this housecleaning is shown by the statistics published this week in the fact that, as shown in table 9, only four graduates of low grade colleges have been licensed in Connecticut in four years, whereas in the preceding three years 167 were so licensed.

Marginal No.	NAME OF COLLEGE	Graduates of All Years					Graduates of 1924-1928					Graduates 1923 and Previous					Graduates of 1928					Marginal No.
		Number Examined	Number Passed	Number Failed	Per Cent Failed	Number of States	Number Examined	Number Passed	Number Failed	Per Cent Failed	Number of States	Number Examined	Number Passed	Number Failed	Per Cent Failed	Number of States	Number Examined	Number Passed	Number Failed	Per Cent Failed	Number of States	
	ARKANSAS																					
1	University of Arkansas School of Medicine	41	40	1	2.4	9	41	40	1	2.4	9	0	0	0	0.0	0	28	28	0	0.0	2	1
	CALIFORNIA																					
2	College of Medical Evangelists	43	43	0	0.0	13	41	41	0	0.0	11	2	2	0	0.0	2	34	34	0	0.0	7	2
3	Stanford University School of Medicine	32	32	0	0.0	2	32	32	0	0.0	2	0	0	0	0.0	0	30	30	0	0.0	2	3
4	University of California Medical School	47	46	1	2.1	2	47	46	1	2.1	2	0	0	0	0.0	0	44	43	1	2.3	1	4
	COLORADO																					
5	University of Colorado School of Medicine	51	50	1	2.0	12	48	47	1	2.1	11	3	3	0	0.0	2	32	31	1	3.1	2	5
	CONNECTICUT																					
6	Yale University School of Medicine	46	40	6	13.0	12	44	38	6	13.6	11	2	2	0	0.0	2	14	12	2	14.3	5	6
	DISTRICT OF COLUMBIA																					
7	Georgetown University School of Medicine	64	59	5	7.8	14	62	57	5	8.1	12	2	2	0	0.0	2	28	25	3	10.7	4	7
8	George Washington University Medical School	78	76	2	2.6	13	76	74	2	2.6	12	1	1	0	0.0	1	42	41	1	2.4	7	8
9	Howard University School of Medicine	89	75	14	15.7	22	81	71	10	12.3	21	8	4	4	50.0	6	31	28	3	9.7	9	9
	GEORGIA																					
10	Emory University School of Medicine	85	85	0	0.0	11	84	84	0	0.0	11	1	1	0	0.0	1	71	71	0	0.0	7	10
11	University of Georgia Medical Department	51	48	3	5.9	7	49	47	2	4.1	6	2	1	1	50.0	2	40	40	0	0.0	3	11
	ILLINOIS																					
12	Loyola University School of Medicine	71	68	3	4.2	10	71	68	3	4.2	10	0	0	0	0.0	0	62	59	3	4.8	8	12
13	Northwestern University Medical School	121	119	2	1.7	24	114	112	2	1.8	23	7	7	0	0.0	5	94	92	2	2.1	21	13
14	University of Chicago, Rush Medical College	159	159	0	0.0	26	150	150	0	0.0	24	9	9	0	0.0	5	104	104	0	0.0	14	14
15	University of Illinois College of Medicine	107	106	1	0.9	18	104	103	1	1.0	16	3	3	0	0.0	3	96	95	1	1.0	13	15
	INDIANA																					
16	Indiana University School of Medicine	100	99	1	1.0	11	98	98	0	0.0	10	2	1	1	50.0	2	90	90	0	0.0	5	16
	IOWA																					
17	State University of Iowa College of Medicine	119	119	0	0.0	10	117	117	0	0.0	9	2	2	0	0.0	2	97	97	0	0.0	4	17
	KANSAS																					
18	University of Kansas School of Medicine	41	40	1	2.4	6	41	40	1	2.4	6	0	0	0	0.0	0	34	34	0	0.0	4	18
	KENTUCKY																					
19	University of Louisville School of Medicine	78	78	0	0.0	12	73	73	0	0.0	11	5	5	0	0.0	2	62	62	0	0.0	3	19
	LOUISIANA																					
20	Tulane University of Louisiana School of Medicine	103	101	2	1.9	12	101	99	2	2.0	12	2	2	0	0.0	2	90	88	2	2.2	10	20
	MARYLAND																					
21	Johns Hopkins University School of Medicine	91	88	3	3.3	22	82	80	2	2.4	20	9	8	1	11.1	7	9	9	0	0.0	5	21
22	Univ. of Md. School of Med. and Coll. of P. and S.	95	94	1	1.1	15	93	93	0	0.0	14	2	1	1	50.0	2	33	32	1	3.0	9	22
	MASSACHUSETTS																					
23	Boston University School of Medicine	59	55	4	6.8	11	57	53	4	7.0	10	2	2	0	0.0	2	33	33	0	0.0	4	23
24	Harvard University Medical School	88	87	1	1.1	22	78	77	1	1.3	20	10	10	0	0.0	9	14	13	1	7.2	5	24
25	Tufts College Medical School	131	125	6	4.6	10	124	119	5	4.0	10	7	6	1	14.3	4	81	78	3	3.7	6	25
	MICHIGAN																					
26	University of Michigan Medical School	133	131	2	2.2	13	124	122	2	1.6	10	9	9	0	0.0	6	104	104	0	0.0	3	26
27	Detroit College of Medicine and Surgery	52	51	1	0.0	4	49	49	0	0.0	2	3	2	1	33.3	3	49	49	0	0.0	2	27
	MINNESOTA																					
28	University of Minnesota Medical School	108	108	0	0.0	8	107	107	0	0.0	7	1	1	0	0.0	1	65	65	0	0.0	5	28
	MISSOURI																					
29	St. Louis University School of Medicine	110	105	5	4.6	17	108	103	5	4.7	17	2	2	0	0.0	2	70	70	0	0.0	8	29
30	Washington University School of Medicine	66	66	0	0.0	20	64	64	0	0.0	19	2	2	0	0.0	2	34	34	0	0.0	9	30
	NEBRASKA																					
31	Creighton University School of Medicine	69	68	1	1.4	17	67	66	1	1.5	17	2	2	0	0.0	2	41	41	0	0.0	6	31
32	University of Nebraska College of Medicine	56	54	2	3.6	12	55	53	2	3.6	12	1	1	0	0.0	1	41	39	2	4.9	6	32
	NEW YORK																					
33	Albany Medical College	26	24	2	7.7	2	24	24	0	0.0	1	2	0	2	100.0	2	24	24	0	0.0	1	33
34	University of Buffalo School of Medicine	66	63	3	4.5	5	63	60	3	4.8	4	3	3	0	0.0	2	52	51	1	1.9	1	34
35	Columbia University College of Phys. and Surgs.	87	80	7	8.0	12	79	73	6	7.6	7	8	7	1	12.5	7	55	52	3	5.5	1	35
36	Cornell University Medical College	52	51	1	1.9	5	50	49	1	2.0	3	2	2	0	0.0	2	36	35	1	2.8	1	36
37	Long Island College Hospital	94	91	3	3.2	8	93	91	2	2.1	7	1	0	1	100.0	1	88	86	2	2.3	4	37
38	New York Homeo. Med. Coll. and Flower Hospital	65	59	6	9.2	2	63	58	5	7.9	1	2	1	1	50.0	2	62	57	5	8.1	1	38
39	University and Bellevue Hospital Medical College	105	104	1	1.0	8	101	101	0	0.0	5	4	3	1	25.0	4	89	89	0	0.0	2	39
40	Syracuse University College of Medicine	38	37	1	2.6	4	38	37	1	2.6	4	0	0	0	0.0	0	33	32	1	3.0	3	40
	OHIO																					
41	Eclectic Medical College	53	50	3	5.7	9	51	49	2	4.0	7	2	1	1	50.0	2	46	44	2	4.3	5	41
42	University of Cincinnati College of Medicine	72	71	1	1.4	6	72	71	1	1.4	5	0	0	0	0.0	0	69	68	1	1.4	5	42
43	Western Reserve University School of Medicine	58	58	0	0.0	5	58	58	0	0.0	5	0	0	0	0.0	0	52	52	0	0.0	1	43
44	Ohio State University College of Medicine	88	87	1	1.1	6	88	87	1	1.1	6	0	0	0	0.0	0	85	84	1	1.2	3	44
	OKLAHOMA																					
45	University of Oklahoma School of Medicine	41	41	0	0.0	5	41	41	0	0.0	5	0	0	0	0.0	0	38	38	0	0.0	2	45
	OREGON																					
46	University of Oregon Medical School	46	43	3	6.5	7	46	43	3	6.5	7	0	0	0	0.0	0	30	27	3	10.0	3	46
	PENNSYLVANIA																					
47	Hahnemann Medical College and Hospital of Phila.	52	52	0	0.0	8	52	52	0	0.0	8	0	0	0	0.0	0	5	5	0	0.0	3	47
48	Jefferson Medical College of Philadelphia	154	153	1	0.7	24	151	150	1	0.7	24	3	3	0	0.0	2	29	28	1	3.4	14	48
49	Temple University School of Medicine	43	42	1	2.4	6	42	42	0	0.0	7	1	0	1	100.0	1	2	2	0	0.0	2	49
50	University of Pennsylvania School of Medicine	135	132	3	2.2	22	129	126	3	2.3	19	6	6	0	0.0	6	20	20	0	0.0	5	50
51	Woman's Medical College of Pennsylvania	25	23	2	8.3	6	20	19	1	5.0	6	5	4	1	20.0	3	1	1	0	0.0	1	51
52	University of Pittsburgh School of Medicine	59	58	1	1.7	7	58	57	1	1.7	7	1	1	0	0.0	1	0	0	0	0.0	0	52
	SOUTH CAROLINA																					
53	Medical College of the State of South Carolina	52	52	0	0.0	10	52	52	0	0.0	10	0	0	0	0.0	0	44	44	0	0.0	5	53
	TENNESSEE																					
54	University of Tennessee College of Medicine	81	81	0	0.0	15	78	78	0	0.0	14	3	3	0	0.0	2	70	70	0	0.0	10	54
55	Meharry Medical College	63	52	11	17.4	16	58	50	8	13.8	13	5	2	3	60.0	5	38	35	3	7.9	8	55
56	Vanderbilt University School of Medicine	48	47	1	2.1	12	44	43	1	2.3	10	4	4	0	0.0	4	38	38	0	0.0	5	56
	TEXAS																					
57	Baylor University College of Medicine	61	61	0	0.0	3	61	61	0	0.0	3	0	0	0	0.0	0	59	59	0	0.0	2	57
58	University of Texas School of Medicine	49	48	1	2.0	5	49	48	1	2.0	5	0	0	0	0.0	0	43	43	0	0.0	2	58
	VERMONT																					
59	University of Vermont College of Medicine	47	44	3	6.4	6	45	42	3	6.7	5	2	2	0	0.0	2	30	30	0	0.0	3	59
	VIRGINIA																					
60	Medical College of Virginia	110	109	1	0.9	12	110	109	1	0.9	12	0	0	0	0.0	0	97	96	1	1.0	9	60
61	University of Virginia Department of Medicine	48	48	0	0.0	12	47	47	0	0.0	11	1	1	0	0.0	1	34	34	0	0.0	5	61
	WISCONSIN																					
62	University of Wisconsin Medical School	17	17	0	0.0	4	17	17	0	0.0	4	0	0	0	0.0	0	2	2	0	0.0	2	62
63	Marquette University School of Medicine	60	60	0	0.0	12	59	59	0	0.0	11	1	1	0	0.0	1	55	55	0	0.0	9	63
	PHILIPPINE ISLANDS																					
64	University of Philippines, Coll. of Med. and Surg.	29	29	0	0.0	1	29	29	0	0.0	1	0	0	0	0.0	0	29	29	0	0.0	1	64
65	University of St. Thomas, Coll. of Med. and Surg.	87	72	15	17.2	1	83	70	13	15.7	1	4	2	2	50.0	1	66	57	9	13.6	1	65

Marginal No.	NAME OF COLLEGE	Graduates of All Years: Number Examined	Number Passed	Number Failed	Per Cent Failed	Number of States	Graduates of 1924-1928: Number Examined	Number Passed	Number Failed	Per Cent Failed	Number of States	Graduates 1923 and Previous: Number Examined	Number Passed	Number Failed	Per Cent Failed	Number of States	Graduates of 1928: Number Examined	Number Passed	Number Failed	Per Cent Failed	Number of States	Marginal No.
	CANADA																					
66	University of Alberta Faculty of Medicine	1	1	0	0.0	1	1	1	0	0.0	1	0	0	0	0.0	0	0	0	0	0.0	0	66
67	Dalhousie University Faculty of Medicine	16	16	0	0.0	7	13	13	0	0.0	7	3	3	0	0.0	3	2	2	0	0.0	2	67
68	Queen's University Faculty of Medicine	32	30	2	6.2	13	19	19	0	0.0	8	13	11	2	15.4	7	3	3	0	0.0	3	68
69	University of Toronto Faculty of Medicine	77	74	3	3.9	15	55	54	1	1.8	11	22	20	2	9.1	8	6	6	0	0.0	5	69
70	University of Western Ontario Medical School	28	28	0	0.0	5	24	24	0	0.0	4	4	4	0	0.0	2	15	15	0	0.0	2	70
71	McGill University Faculty of Medicine	79	74	5	6.3	21	60	57	3	5.1	14	19	17	2	10.5	11	14	13	1	7.2	5	71
72	University of Montreal Medical Faculty	21	13	8	38.1	7	13	9	4	30.8	4	8	4	4	50.0	3	1	0	1	100.0	1	72
73	Laval University Faculty of Medicine	4	3	1	25.0	3	4	3	1	25.0	3	0	0	0	0.0	0	1	1	0	0.0	1	73
74	University of Manitoba Faculty of Medicine	20	19	1	5.0	11	13	13	0	0.0	7	7	6	1	12.5	6	5	5	0	0.0	4	74
75	Foreign Colleges	188	97	91	48.4	23	50	28	22	44.0	16	138	69	69	50.0	17	4	4	0	0.0	3	75
76	Miscellaneous Medical Colleges	60	44	16	25.4	19	0	0	0	0.0	0	60	44	16	26.7	20	0	0	0	0.0	0	76
77	Undergraduates and Grads. of Nondescript Colleges	223	123	100	44.6	14	..	..	..	....	..	..	..	..	....	..	..	..	..	....	..	77
78	Totals by States	5538	....	...	....	..	4785	....	...	....		435	...	...	....		3169	....	..	....		78
79	Totals — Examined — Passed	....	5170	...	....	..	....	4637	...	....		...	315	...	....		....	3107	..	....		79
80	Totals — Examined — Failed	....	....	368	....	..	....	....	148	....		...	...	120	....		....	....	62	....		80
81	Percentage of Failures	....	....	...	6.4	..	....	....	...	3.1		...	...	...	27.6		....	....	..	2.0		81

In 1921, three separate boards in Florida were replaced by a single, composite board, but Dr. George A. Munch, the secretary of the Eclectic Board, refused to turn in his records and continued to issue licenses which, by being dated in or prior to 1921, had the appearance of legality. In March, 1927, Munch was convicted of using the mails in the sale of fradulent diplomas and was given a fine of $1,000 and sentenced to serve five years in the penitentiary. The decision was reversed by the supreme court, but on Feb. 16, 1929, after a second trial, he was again convicted and given a similar penalty. The door has been permanently closed, therefore, against "easy" licenses in Florida.

The issuing of licenses by the Arkansas Eclectic Board was supposedly limited to graduates of eclectic medical colleges. Nevertheless, in 1926 a license was issued to a graduate of the St. Louis College of Physicians and Surgeons, a regular medical school, which was closed by court process, March 23, 1927. As we go to press, Arkansas reports the passing of a basic science law which shows that activities for improvement have begun.

In Missouri, the situation is still serious, since new charters have been granted to successors of the two diploma mills whose charters were revoked. Meanwhile, the Missouri board recently licensed by reciprocity with the Arkansas board four graduates of one of the outlawed institutions, even though it was officially declared to be "not recognized" by the board.

STUDY OF TOTALS AND PERCENTAGES

A study of totals and percentages (table 3) as compared with previous years is of interest. The number, 5,538, examined in 1928, was eighty-three more than were examined in 1927, but 271 less than were examined in 1926. By all methods—examination, reciprocity, under exemption, etc.—7,376 physicians were licensed in 1928, 169 more than were licensed in 1927, but 501 less than in 1906, when 7,865 were licensed by all methods. The physicians licensed in 1928, however (table 8), include a larger percentage of those having higher educational and professional qualifications. The percentage coming from class A medical schools has increased from 58.7 in 1918 to 85.0 in 1928.

TOTALS EXAMINED IN FIVE YEARS

Table 4 shows the number registered and the number rejected by examination in each state for the last five years. A comparison of this table with the statistics in the last educational number of THE JOURNAL (Aug. 18, 1928, p. 479, table 8) shows that the states having the largest numbers of medical graduates naturally had the largest numbers examined. New York leads, having examined 5,006 candidates in five years, or more than twice as many as Illinois, which examined 2,016, followed by Pennsylvania with 1,804, California with 1,697 and Massachusetts with 1,485. Altogether, 28,108 physicians were examined by state boards in five years, of whom 25,697 (91.4 per cent) were registered—an average of 5,139 each year.

TABLE 3.—*Results for This and Previous Years*

Year	All Candidates Examined: Examined	Passed	Filed	Percentage Failed	Nondescript: Examined	Percentage Failed	Registered Without Written Examination	Total Registered
1904	7,035	5,672	1,363	19.3	515	52.6	999	6,671
1905	7,170	5,680	1,490	20.8	472	61.9	394	6,074
1906	8,035	6,368	1,667	20.7	703	51.3	1,497	7,865
1907	7,271	5,723	1,548	21.3	674	69.6	1,426	7,149
1908	7,770	6,084	1,686	21.7	494	56.8	1,276	7,360
1909	7,287	5,857	1,430	19.6	438	54.1	1,373	7,230
1910	7,004	5,712	1,292	18.4	353	45.6	1,640	7,352
1911	6,960	5,578	1,382	19.9	330	38.5	1,246	6,824
1912	6,879	5,466	1,413	20.5	253	34.8	1,257	6,723
1913	6,435	5,236	1,199	18.6	251	37.8	1,265	6,501
1914	5,570	4,370	1,200	21.6	293	61.4	1,427	5,797
1915	5,313	4,486	827	15.6	65	49.2	1,386	5,872
1916	4,850	4,123	727	15.0	...	....	1,338	5,461
1917	4,730	4,061	669	14.1	...	....	1,362	5,423
1918	3,637	3,154	483	13.3	...	....	1,031	4,185
1919	4,736	4,060	676	14.3	66	47.0	2,521	6,584
1920	4,787	4,053	734	15.3	65	50.8	2,504	6,557
1921	4,807	4,211	596	12.4	88	33.0	2,137	6,348
1922	3,993	3,501	492	12.3	83	49.7	1,996	5.497
1923	4,698	3,998	700	14.9	58	34.5	2,323	6,321
1924	5,350	4,713	637	11.9	34	17.6	1,840	6,553
1925	5,956	5,404	552	9.3	62	53.2	1,790	7,194
1926	5,809	5,342	467	8.0	158	50.5	1,881	7,223
1927	5,455	5,068	387	7.1	182	23.6	2,139	7,207
1928	5,538	5,170	368	6.4	318	31.4	2,193	7,376

TOTAL REGISTRATION IN 1928

The tables thus far described have referred only to those registered by examination. Table 5, however, shows the total number who received licenses in each state, including those registered by reciprocity and under various exemption clauses. In all, 7,376 physicians were registered by all methods during 1928, or 169 more than in 1927. The total registered in 1918—4,185—was the lowest number registered in any year, owing undoubtedly to the war. The registration this year was 7,376, the largest number since 1906, when 7,865 physicians were registered.

Of the 595 licensed in California, 224, or 37.6 per cent, were registered by the endorsement of licenses granted by other states. Several medical boards examined and licensed osteopaths or other nondescripts as "physicians and surgeons." Massachusetts licensed

fifty-seven, Illinois thirty-two, Colorado twenty-six and Texas thirty-eight. In California, ninety-five osteopaths were licensed as physicians and surgeons by the

TABLE 4.—*Physicians Examined by State Boards 1924 to 1928, Inclusive*

	1924		1925		1926		1927		1928		Totals			
	Registered	Rejected	Registered	Rejected	Registered	Rejected	Registered	Rejected	Registered	Rejected	Examined	Registered	Rejected	Percentage Rejected
Alabama	25	1	26	1	30	0	35	0	25	0	143	141	2	1.4
Arizona	0	0	5	0	12	1	10	3	13	2	52	46	6	11.5
Arkansas	32	1	48	0	29	0	48	1	42	0	201	199	2	1.0
California	250	80	293	38	275	29	320	21	371	20	1,697	1,509	188	11.1
Colorado	40	15	52	17	89	27	75	34	66	15	430	322	108	25.1
Connecticut	83	22	49	14	45	6	57	2	67	5	350	301	49	11.1
Delaware	8	1	4	1	7	1	2	0	10	0	34	31	3	8.8
Dist. Columbia	68	13	105	2	95	8	99	0	104	0	494	471	23	4.7
Florida	147	39	437	100	196	45	90	10	72	3	1,139	942	197	17.3
Georgia	80	0	86	0	78	0	67	0	91	0	402	402	0	0.0
Idaho	5	0	9	0	14	1	17	2	5	1	54	50	4	7.4
Illinois	344	81	296	39	408	39	377	38	344	30	2,016	1,789	227	11.2
Indiana	78	0	96	0	84	0	103	2	103	0	466	464	2	0.4
Iowa	79	0	89	1	92	0	91	0	110	1	443	441	2	0.5
Kansas	47	0	65	0	81	0	56	0	53	0	302	302	0	0.0
Kentucky	54	0	58	2	74	6	72	1	76	0	343	334	9	2.6
Louisiana	73	1	72	2	77	2	99	2	107	1	436	428	8	1.8
Maine	39	0	40	3	39	3	25	5	29	1	204	192	12	5.9
Maryland	96	4	115	6	106	2	96	5	116	4	550	529	21	3.8
Massachusetts	200	68	146	68	256	105	195	75	221	91	1,485	1,078	407	27.4
Michigan	224	2	268	2	227	2	217	1	253	2	1,198	1,189	9	0.8
Minnesota	115	0	135	0	152	0	137	0	156	0	695	695	0	0.0
Mississippi	29	1	28	0	18	2	21	0	24	0	114	111	3	2.6
Missouri	182	16	165	11	158	3	124	1	105	1	766	734	32	4.2
Montana	18	1	13	1	12	0	9	1	12	1	68	64	4	5.9
Nebraska	85	3	124	5	101	0	96	5	69	2	490	475	15	3.1
Nevada	7	0	2	0	2	0	7	1	6	3	28	24	4	14.3
New Hampshire	3	0	3	0	2	0	5	0	1	0	14	14	0	0.0
New Jersey	66	10	74	6	55	8	57	6	60	5	347	312	35	10.1
New Mexico	0	0	1	0	2	1	0	0	0	1	5	3	2	40.0
New York	788	177	933	136	883	124	896	111	835	123	5,006	4,335	671	13.4
N. Carolina	89	1	80	1	93	0	91	0	69	4	428	422	6	1.4
N. Dakota	3	0	18	3	16	2	16	2	14	1	75	67	8	10.7
Ohio	255	22	306	13	279	4	243	3	288	8	1,421	1,371	50	3.5
Oklahoma	15	0	38	0	49	0	50	0	54	0	2.6	2.6	0	0.0
Oregon	41	7	51	9	51	2	41	4	34	4	244	218	26	10.7
Pennsylvania	302	11	335	24	371	8	363	10	375	5	1,804	1,746	58	3.2
Rhode Island	20	3	25	2	26	4	24	3	25	3	135	120	15	11.1
S. Carolina	34	2	38	1	44	4	37	1	46	0	207	199	8	3.9
S. Dakota	21	1	14	0	17	0	9	0	12	0	74	73	1	1.4
Tennessee	116	0	119	0	136	0	133	0	129	0	633	633	0	0.0
Texas	98	1	110	5	124	5	133	2	141	5	624	606	18	2.9
Utah	8	0	13	0	14	1	5	1	4	0	46	44	2	4.3
Vermont	34	0	52	0	38	1	22	0	31	0	178	177	1	0.6
Virginia	76	1	87	0	96	0	103	1	105	0	469	467	2	0.4
Washington	30	1	27	2	23	2	27	2	35	1	150	142	8	5.3
West Virginia	61	4	57	9	52	11	59	2	40	1	296	269	27	9.1
Wisconsin	102	9	115	12	104	3	88	1	72	1	457	431	26	5.7
Wyoming	3	1	4	0	3	1	2	0	1	0	15	13	2	13.3
U.S. Territories and Poss.	63	37	78	16	107	4	169	28	149	23	674	566	108	16.0
Totals	5,350		5,956		5,809		5,455		5,538		28,108			
Registered	4,713		5,404		5,342		5,068		5,170		25,697			
Rejected	637		552		467		387		368		2,411			
Per cent rejected	11.9		9.3		8.0		7.1		6.8		8.6			

This table gives the number of physicians *examined* in each state during the last five years. The last four columns give the totals and percentages of those rejected by each state during the five years. Seven states registered over 1,000 candidates by examination in the five years—New York, Illinois, Pennsylvania, California, Ohio, Massachusetts and Michigan. Altogether 28,108 physicians were examined in the five years, an average of 5,622 each year. The total registered each year is shown in table 6.

The states having the highest percentages of failures in the five years were New Mexico, 40.0; Massachusetts, 27.4; Colorado, 25.1, and Florida, 17.3. There were no failures in Georgia, Kansas, Minnesota, New Hampshire, Oklahoma and Tennessee during the five years. The percentage of failures on the average was 8.6.

osteopathic board. Altogether, 286 graduates of nondescript institutions were licensed as physicians and surgeons during 1928.

TOTAL REGISTRATION IN FIVE YEARS

Table 6 permits the reader to note the registration in each state for the last five years. During the last five years, New York registered 5,130, the highest number, followed by California with 2,995, Illinois with 2,198, Pennsylvania with 1,983, Ohio with 1,893, and Michigan with 1,612. The four lowest registrations are Delaware with sixty-four, Wyoming with seventy-three, Nevada with ninety-three and New Mexico with ninety-six.

MEDICAL TRAINING OF APPLICANTS LICENSED IN 1928

Table 7 is of especial interest, since it shows for each state the numbers of candidates coming from medical schools rated in class A or B and nondescript colleges, thereby indicating the character of the medical training of the candidates licensed during 1928. Of the 7,376 candidates registered, 5,170 were licensed by examination and 2,206 by reciprocity or on presentation of acceptable credentials. Those who graduated prior to 1907—before the first classification of medical colleges was completed—and graduates of foreign colleges, are included among graduates of "miscellaneous colleges." Among the graduates of nondescript schools

TABLE 5.—*Registration by State Boards During 1928*

	By Examination			By Reciprocity or Credentials	Without Written Examination or Under Exemption	Total Registered
State	Graduates of Medical Schools	Non-graduates	Graduates of Nondescript Colleges			
Alabama	25	..	..	39	..	64
Arizona	13	..	..	36	..	49
Arkansas	41	..	1	18	..	60
California	274	..	97	224	..	595
Colorado	43	..	23	40	..	106
Connecticut	67	..	..	35	..	102
Delaware	10	..	..	10	..	20
District of Columbia	103	..	1	18	..	122
Florida	71	..	1	..	..	72
Georgia	91	..	..	19	..	110
Idaho	5	..	..	11	..	16
Illinois	314	..	30	112	..	456
Indiana	103	..	..	38	..	141
Iowa	110	..	..	34	..	144
Kansas	52	..	1	26	..	79
Kentucky	74	..	2	46	..	122
Louisiana	107	..	..	13	..	120
Maine	29	..	..	12	..	41
Maryland	116	..	..	31	..	147
Massachusetts	164	..	57	31	..	252
Michigan	252	..	1	90	..	343
Minnesota	156	..	..	47	..	203
Mississippi	23	1	..	29	..	53
Missouri	105	..	..	73	..	178
Montana	12	..	..	14	..	26
Nebraska	69	..	..	6	..	75
Nevada	5	..	1	10	..	16
New Hampshire	1	..	..	16	..	17
New Jersey	60	..	..	181	..	241
New Mexico	..	..	..	18	..	18
New York	834	..	1	216	13	1,061
North Carolina	69	..	..	32	..	101
North Dakota	14	..	..	10	..	24
Ohio	287	..	1	111	..	399
Oklahoma	54	..	..	39	..	93
Oregon	33	..	1	32	..	66
Pennsylvania	375	..	..	51	..	426
Rhode Island	25	..	..	3	..	28
South Carolina	46	..	..	10	..	56
South Dakota	12	..	..	11	..	23
Tennessee	128	1	..	22	..	151
Texas	137	..	4	171	..	312
Utah	4	..	..	10	..	14
Vermont	31	..	..	4	..	35
Virginia	105	..	..	30	..	135
Washington	35	..	..	66	..	101
West Virginia	40	..	..	26	..	66
Wisconsin	72	..	..	60	..	132
Wyoming	1	..	..	11	..	12
U.S. Terr. and Poss.	148	1	..	4	..	153
Totals	4,945	3	222	2,193	13	7,376

This table shows the number of physicians registered in each state during 1928 by examination, reciprocity and endorsement of credentials. The first three columns show those registered by examination, including graduates and nongraduates, or graduates of osteopathic or nondescript institutions who were licensed as physicians and surgeons. The fourth column shows the number registered by the endorsement of licenses issued by other states (reciprocity) and of certificates of the Army, Navy, Public Health Service and of the National Board of Medical Examiners. The fifth column shows the number of candidates licensed under exemption clauses. Osteopaths or graduates of other nondescript institutions were licensed as physicians and surgeons in California, 97; Massachusetts, 57; Colorado, 23, and Texas, 4. The last column shows for each state the total number of physicians registered during 1928. Seven states registered over 300 each, these being New York, 1,061; California, 595; Illinois, 456; Pennsylvania, 426; Ohio, 399; Michigan, 343, and Texas, 312. The total registration was 7,376, an increase of 100 over 1927.

are included 138 osteopaths, who were licensed as physicians: in California, ninety-five; Massachusetts, twenty-seven; Colorado, twelve, and Texas, four.

Included among the nondescript graduates this year are seventy-seven graduates of institutions heretofore

TABLE 6.—*Registration by State Boards for Five Years*

State	1924	1925	1926	1927	1928	Totals
Alabama	50	47	84	46	64	291
Arizona	26	30	32	34	49	171
Arkansas	51	80	54	57	60	302
California	638	584	530	648	595	2,995
Colorado	86	108	152	130	106	582
Connecticut	107	116	92	91	102	508
Delaware	11	12	12	9	20	64
District of Columbia	90	119	113	113	122	557
Florida	157	438	195	90	72	953
Georgia	100	98	104	89	110	501
Idaho	16	15	24	31	16	102
Illinois	432	358	469	483	456	2,198
Indiana	157	161	136	148	141	743
Iowa	101	139	127	118	144	629
Kansas	90	93	117	81	79	460
Kentucky	88	94	104	109	122	517
Louisiana	81	81	88	114	120	484
Maine	68	51	46	35	41	241
Maryland	111	139	134	124	147	655
Massachusetts	266	153	256	222	252	1,149
Michigan	319	335	319	296	343	1,612
Minnesota	180	205	214	183	203	985
Mississippi	33	41	45	41	53	213
Missouri	191	165	158	163	178	855
Montana	26	24	18	22	26	116
Nebraska	99	134	113	107	75	528
Nevada	23	11	19	24	16	93
New Hampshire	22	20	20	26	17	105
New Jersey	124	74	55	234	241	728
New Mexico	16	21	17	24	18	96
New York	881	1,078	1,039	1,071	1,061	5,130
North Carolina	128	118	126	129	101	602
North Dakota	14	30	28	19	24	115
Ohio	388	383	371	352	399	1,893
Oklahoma	48	67	78	104	93	390
Oregon	57	93	68	66	66	350
Pennsylvania	343	367	421	423	426	1,983
Rhode Island	20	25	26	24	28	123
South Carolina	41	51	44	49	56	241
South Dakota	31	24	26	18	23	122
Tennessee	116	119	146	151	151	683
Texas	98	242	328	284	312	1,264
Utah	18	26	43	14	14	115
Vermont	36	59	43	30	35	203
Virginia	104	117	128	132	135	616
Washington	116	113	115	73	101	518
West Virginia	84	80	83	102	66	415
Wisconsin	189	165	139	86	132	711
Wyoming	19	12	14	16	12	73
U. S. Possessions	63	79	109	169	153	573
Totals	6,553	7,194	7,223	7,207	7,376	35,553

This table shows the totals *registered* in each state during the last five years. Decreases are noteworthy in California, Florida, Kansas, Nebraska and West Virginia. Marked increases over 1927 are noted in Connecticut, Georgia, Kentucky, Louisiana and Ohio. During the five years the totals registered increased from 6,553 to 7,376, the largest number registered since 1906. Since 1927 there was an increase of 169.

TABLE 7.—*Qualifications of Physicians Licensed in 1928*

	By Examination					By Reciprocity or Credentials					Totals Registered from Medical Colleges in Class				
	Medical Colleges in Class					Medical Colleges in Class									
State	A	B	Nondescript	Miscellaneous	Totals	A	B	Nondescript	Miscellaneous	Totals	A	B	Nondescript	Miscellaneous	Grand Totals
Alabama	25	..	..	..	25	36	2	1	..	39	61	2	1	..	63
Arizona	11	1	..	1	13	24	3	..	9	36	35	4	..	10	49
Arkansas	32	2	1	7	42	15	2	1	..	18	47	4	2	7	60
California	267	..	97	7	371	177	10	2	35	224	444	10	99	42	595
Colorado	41	1	23	1	66	28	2	3	7	40	69	3	26	8	106
Connecticut	67	..	..	..	67	28	1	1	5	35	95	1	1	5	102
Delaware	9	1	..	..	10	9	..	1	..	10	18	1	1	..	20
District of Columbia	101	1	1	1	104	10	1	3	4	18	111	2	4	5	122
Florida	57	5	1	9	72	..	..	..	..	..	57	5	1	9	72
Georgia	89	2	..	..	91	15	1	2	1	19	104	3	2	1	110
Idaho	5	..	..	..	5	10	1	..	..	11	15	1	..	..	16
Illinois	306	2	30	6	344	102	1	2	7	112	408	3	32	13	456
Indiana	97	5	..	1	103	30	1	2	5	38	127	6	2	6	141
Iowa	108	..	..	2	110	28	1	..	5	34	136	1	..	7	144
Kansas	48	1	1	3	53	21	..	..	5	26	69	1	1	8	79
Kentucky	67	7	2	..	76	35	5	..	6	46	102	12	2	6	122
Louisiana	101	3	..	3	107	12	..	..	1	13	113	3	..	4	120
Maine	26	3	..	..	29	12	..	..	..	12	38	3	..	..	41
Maryland	112	1	..	3	116	23	3	2	3	31	135	4	2	6	147
Massachusetts	154	5	57	5	221	31	..	..	..	31	185	5	57	5	252
Michigan	243	5	1	4	253	84	3	..	3	90	327	8	1	7	343
Minnesota	154	2	..	..	156	46	..	..	1	47	200	2	..	1	203
Mississippi	23	..	1	..	24	22	3	..	4	29	45	3	1	4	53
Missouri	104	..	..	1	105	60	3	1	9	73	164	3	1	10	178
Montana	12	..	..	..	12	12	2	..	..	14	24	2	..	..	26
Nebraska	69	..	..	..	69	5	..	..	1	6	74	..	..	1	75
Nevada	3	..	1	2	6	6	..	2	2	10	9	..	3	4	16
New Hampshire	1	..	..	..	1	15	..	..	1	16	16	..	..	1	17
New Jersey	53	5	..	2	60	155	16	1	9	181	208	21	1	11	241
New Mexico	..	..	..	..	..	11	1	..	6	18	11	1	..	6	18
New York	720	77	1	37	835	183	6	..	37	226	903	83	1	74	1,061
North Carolina	69	..	..	..	69	26	2	2	2	32	95	2	2	2	101
North Dakota	14	..	..	..	14	9	1	..	..	10	23	1	..	..	24
Ohio	261	26	1	..	288	95	10	..	6	111	356	36	1	6	399
Oklahoma	54	..	..	..	54	31	2	1	5	39	85	2	1	5	93
Oregon	32	1	1	..	34	27	3	..	2	32	59	4	1	2	66
Pennsylvania	280	38	..	57	375	51	..	..	..	51	331	38	..	57	426
Rhode Island	24	..	..	1	25	2	..	..	1	3	26	..	..	2	28
South Carolina	46	..	..	..	46	10	..	..	..	10	56	..	..	..	56
South Dakota	11	..	..	1	12	11	..	..	..	11	22	..	..	1	23
Tennessee	128	..	1	..	129	21	1	..	..	22	149	1	1	..	151
Texas	123	...	4	14	141	94	6	34	37	171	217	6	38	51	312
Utah	4	..	..	..	4	10	..	..	..	10	14	..	..	..	14
Vermont	28	..	..	3	31	4	..	..	..	4	32	..	..	3	35
Virginia	105	..	..	..	105	23	2	..	5	30	128	2	..	5	135
Washington	33	2	..	..	35	63	1	..	2	66	96	3	..	2	101
West Virginia	40	..	..	..	40	24	..	..	2	26	64	..	..	2	66
Wisconsin	69	2	..	1	72	50	..	..	10	60	119	2	..	11	132
Wyoming	1	..	..	..	1	6	2	..	3	11	7	2	..	3	12
U. S. Territories and Possessions	36	2	1	110	149	4	..	..	..	4	40	2	1	110	153
Totals	4,463	200	225	282	5,170	1,806	98	61	241	2,206	6,269	298	286	523	7,376

Of the 99 nondescript graduates in California, 95 were osteopaths licensed as physicians and surgeons by the osteopathic board; of the 26 licensed in Colorado, 12 were osteopaths and one was a nongraduate; of the 54 licensed in Massachusetts, 27 were osteopaths and 30 were graduates of institutions not recognized as medical by the American Medical Association.

In Connecticut in 1928, only one nondescript graduate was licensed.

Of the 38 nondescript graduates licensed in Texas, 37 were osteopaths who were licensed as physicians and surgeons.

Illinois harbors one nondescript institution, which is not recognized in 46 other states. This accounts for the 32 such graduates licensed. Massachusetts has two nondescript institutions and is without authority to refuse them recognition, which accounts for the large number of such graduates licensed in that state. Missouri has three nondescript colleges, but in 1928 the Missouri board registered only one nondescript graduate.

Altogether fourteen nondescript graduates were licensed by reciprocity in states which registered none, by examination. In 1928, 225 nondescript graduates were licensed by examination and 61 through reciprocity, a total of 286, 10 more than in 1927.

listed as "class C" institutions, but which are now deemed by the Council on Medical Education and Hospitals as being unworthy of recognition as "medical" schools.

The largest number of nondescript graduates was licensed in California with ninety-nine, Massachusetts with fifty-seven, Texas with thirty-eight, Illinois with thirty-two and Colorado with twenty-six. In 1928 only class A graduates were registered by either examination or reciprocity in Nebraska, New Hampshire, Rhode Island, South Carolina, South Dakota, Utah, Vermont and West Virginia.

Of the 7,376 physicians registered by all methods in 1928, 6,269, or 85.0 per cent, graduated from class A medical colleges; 298, or 4.0 per cent, from class B colleges; 286, or 3.9 per cent, from nondescript colleges, and 523, or 7.1 per cent, from "miscellaneous" medical colleges. By comparing these figures with the results for the previous ten years as shown in table 8, it is noteworthy that the percentages from class B colleges are steadily decreasing, and the percentage of graduates of class A colleges is increasing.

TABLE 8.—*Source of Physicians Licensed in Eleven Years*

	From Medical Colleges in						Miscellaneous and Foreign		
	Class A		Class B		Class C				
Year	Number	Per Cent	Number	Per Cent	Number	Per Cent	Number	Per Cent	Total
1918	2,456	58.7	682	16.3	342	8.2	705	16.8	4,185
1919	4,368	66.4	872	13.2	278	4.2	1,066	16.2	6,584
1920	4,597	70.2	631	9.6	275	4.2	1,054	16.0	6,557
1921	4,445	70.0	585	9.2	394	6.2	924	14.6	6,348
1922	3,999	72.8	444	8.1	316	5.7	738	13.4	5,497
1923	4,755	75.2	380	6.0	299	4.8	887	14.1	6,321
1924	5,196	79.3	404	6.2	129	1.9	824	12.6	6,553
1925	5,852	81.3	382	5.3	171	2.4	789	11.0	7,194
1926	6,045	83.7	322	4.4	263	3.6	593	8.2	7,223
1927	6,077	84.3	296	4.1	276	3.8	558	7.7	7,207
1928	6,269	85.0	298	4.0	286	3.9	523	7.1	7,376
Total	54,059	76.1	5,296	7.5	3,029	4.3	8,661	12.1	71,045

TRAINING OF PHYSICIANS REGISTERED IN SIX YEARS

Table 9 is of particular interest since it shows the character of the physicians registered during the last six years. It is noteworthy that of the 41,876 physicians registered in these six years, 34,194, or 81.7 per

TABLE 9.—*Qualifications of Physicians Licensed by State Medical Boards in Six Years*

Mar. No.	State	Graduates of Class A Medical Schools							Graduates of Class B Medical Schools							Graduates of Nondescript Schools							Grads. Regis- of Misc. tra- Coll. tions 6 Yrs. 6 Yrs.		Mar. No.
		1923	1924	1925	1926	1927	1928	Total	1923	1924	1925	1926	1927	1928	Total	1923	1924	1925	1926	1927	1928	Total			
1	Alabama	46	40	43	77	45	61	312	5	4	1	6	1	2	19	0	0	1	0	0	1	2	11	344	1
2	Arizona	15	17	18	22	19	35	126	1	5	2	4	5	4	21	1	0	3	0	2	0	6	45	198	2
3	Arkansas	24	27	42	35	50	47	225	8	9	8	6	2	4	37	36	1	21	8	2	2	70	49	381	3
4	California	459	461	433	392	469	444	2,658	56	46	33	26	19	10	190	17	8	12	49	96	99	281	558	3,687	4
5	Colorado	59	49	63	85	72	69	397	6	7	10	8	3	3	37	21	17	18	44	40	26	166	84	684	5
6	Connecticut	62	94	97	86	83	95	517	2	3	9	4	2	1	21	27	0	1	0	2	1	31	40	609	6
7	Florida	60	117	347	165	73	57	819	2	2	2	2	0	1	9	0	0	0	0	0	1	1	8	76	7
8	Dist. Columbia	66	76	104	102	109	111	563	2	3	1	3	3	2	14	5	3	3	3	0	4	18	36	636	8
9	Florida	60	117	347	165	73	58	819	4	7	35	6	6	5	63	1	4	2	3	1	1	12	131	1,025	9
10	Georgia	87	92	96	98	85	104	562	4	3	0	1	2	3	13	2	2	1	1	1	2	9	12	596	10
11	Idaho	7	12	8	21	22	15	85	2	4	2	0	1	1	10	0	0	0	0	1	0	1	17	113	11
12	Illinois	341	309	295	393	417	408	2,133	27	31	32	16	8	3	117	25	18	23	40	40	32	178	197	2,625	12
13	Indiana	111	116	133	122	139	127	748	10	20	8	8	4	6	56	1	1	3	0	0	2	7	74	885	13
14	Iowa	64	84	123	126	114	136	641	1	6	3	6	1	1	18	0	3	3	0	0	0	6	34	699	14
15	Kansas	55	71	81	106	77	69	459	11	8	3	4	1	1	28	21	2	2	0	0	1	26	49	562	15
16	Kentucky	54	71	78	85	94	102	484	6	8	6	13	8	12	53	3	2	2	1	1	2	11	36	584	16
17	Louisiana	68	78	79	85	108	113	531	3	3	1	0	3	3	13	0	0	1	3	0	0	4	12	560	17
18	Maine	29	55	41	41	32	38	236	2	3	3	1	2	3	14	0	0	0	0	0	0	0	23	273	18
19	Maryland	109	92	129	122	118	135	696	5	4	4	4	3	4	24	0	2	2	2	0	2	8	49	777	19
20	Massachusetts	138	190	114	183	179	185	989	3	5	3	1	2	5	19	59	46	31	55	39	57	287	78	1,373	20
21	Michigan	2 8	283	301	280	278	327	1,707	10	13	11	11	10	8	63	1	1	1	3	0	1	7	117	1,894	21
22	Minnesota	138	157	194	207	180	200	1,076	2	3	4	2	1	2	14	0	0	0	0	0	0	0	42	1,132	22
23	Mississippi	35	28	32	33	38	45	211	4	3	5	4	0	3	19	0	0	2	2	1	1	6	22	258	23
24	Missouri	148	182	160	147	155	164	956	16	0	2	5	1	3	27	38	1	1	0	2	1	43	45	1,071	24
25	Montana	15	22	19	17	17	24	114	3	1	3	1	1	2	11	0	0	0	0	0	0	0	11	136	25
26	Nebraska	108	92	132	108	100	74	614	3	0	1	0	1	0	5	0	0	0	2	1	0	3	24	646	26
27	Nevada	5	8	8	14	14	9	58	3	1	0	1	2	0	7	6	4	1	1	3	3	18	30	113	27
28	New Hampshire	9	16	17	19	19	16	96	0	2	0	1	4	0	7	0	0	0	0	1	0	1	11	115	28
29	New Jersey	152	81	51	46	195	208	733	9	7	3	2	14	21	56	1	1	0	0	1	1	4	143	936	29
30	New Mexico	14	7	11	11	15	11	69	3	3	1	2	2	1	12	1	0	0	1	1	0	3	43	127	30
31	New York	648	703	836	874	901	903	4,865	39	62	74	67	55	83	380	1	0	1	0	2	1	5	634	5,884	31
32	North Carolina	86	109	110	118	124	95	642	13	5	3	0	0	2	23	2	1	0	1	0	2	6	42	713	32
33	North Dakota	13	8	28	28	18	23	118	3	2	1	0	1	1	8	0	0	0	0	0	0	0	5	131	33
34	Ohio	250	302	321	347	308	356	1,884	25	33	36	11	29	36	170	0	1	2	0	0	1	4	142	2,200	34
35	Oklahoma	47	33	56	67	98	85	386	11	5	3	4	2	2	27	4	2	1	0	2	1	10	43	466	35
36	Oregon	36	44	77	63	60	59	339	5	6	4	1	2	4	22	1	1	0	1	0	1	4	29	394	36
37	Pennsylvania	229	304	325	352	357	331	1,898	17	29	20	45	61	38	210	0	0	0	4	1	0	5	123	2,239	37
38	Rhode Island	25	17	20	20	23	26	131	0	0	0	0	1	0	1	0	0	0	0	0	0	0	17	149	38
39	South Carolina	39	39	45	42	46	56	267	4	2	3	0	1	0	10	1	0	1	0	1	0	3	6	286	39
40	South Dakota	23	23	20	21	16	22	125	0	0	1	2	0	0	3	0	2	0	2	0	0	4	18	150	40
41	Tennessee	110	113	116	142	147	149	777	1	2	0	2	2	1	8	0	1	2	0	0	1	4	8	797	41
42	Texas	136	94	163	212	200	217	1,022	19	0	16	21	18	6	80	18	2	23	24	25	38	140	223	1,465	42
43	Utah	23	17	23	40	13	14	130	0	0	1	0	0	0	1	0	0	0	0	0	0	0	8	139	43
44	Vermont	26	31	56	40	27	32	215	0	0	0	1	1	0	2	0	0	0	0	0	0	0	16	233	44
45	Virginia	86	99	111	123	126	128	673	2	2	1	2	2	2	11	2	1	2	1	2	0	8	22	714	45
46	Washington	45	65	86	97	63	96	452	11	13	10	4	3	3	44	0	1	3	1	0	0	5	91	592	46
47	West Virginia	91	71	71	74	90	64	461	4	1	3	2	2	0	12	0	0	0	0	4	0	4	44	521	47
48	Wisconsin	87	140	134	115	78	119	673	9	28	9	9	3	2	60	3	0	2	1	1	0	7	75	815	48
49	Wyoming	8	14	11	12	13	7	65	3	0	0	1	1	2	7	0	1	0	0	0	0	1	13	86	49
50	U. S. Territories and Possessions	22	34	25	28	44	40	193	1	0	1	2	0	2	6	0	0	0	0	3	1	4	584	787	50
	Totals	4,755	5,196	5,852	6,045	6,077	6,269	34,194	380	404	382	322	296	298	2,082	298	129	171	263	276	286	1,423	4,177	41,876	

Of the 70 graduates of low grade colleges licensed in Arkansas during the last six years, all but four were licensed by the Eclectic Board of Medical Examiners.

During the six years 281 graduates of nondescript colleges were licensed in California, including 215 osteopaths who were licensed as physicians. None were examined by the Board of Medical Examiners since 1922 when a separate osteopathic board was created. The latter board licensed some osteopaths as physicians and surgeons, and in 1928 licensed 95.

Of the 166 nondescript graduates licensed in Colorado, 118 were osteopaths who were licensed with the same privileges as physicians.

Since 1923, in Connecticut only four graduates of nondescript colleges have been certified and one of these was refused a license by the commissioner of health.

Illinois and Massachusetts are two of the three states which harbor nondescript colleges and examine their graduates, which accounts for the 178 and 287 nondescript graduates licensed, respectively, in those states. Although there are still three nondescript colleges in Missouri, the board has refused to recognize their graduates. The 38 nondescript graduates licensed in 1923 were the result of an amendment to the practice law which, however, was soon repealed. Only 43 nondescript graduates were registered in the last six years.

Of the 140 graduates of the nondescript institutions licensed in Texas during the six years, 78 were osteopaths who have the same privileges as physicians.

cent, were graduates of class A medical schools; 2,082, or 5.0 per cent, were graduates of class B schools; 1,423, or 3.4 per cent, were graduates of nondescript institutions, while 4,177, or 10.0 per cent, were graduates of "miscellaneous" and foreign medical schools. The largest number of nondescript candidates in the six years was 287, who were licensed in Massachusetts, followed by California with 281, Illinois with 178, Colorado with 166 and Texas with 140. In California, shown in California, Massachusetts and Texas. Although Missouri harbors three nondescript colleges, the board until just recently has persisted in refusing to recognize them, so that very few such candidates secure licenses.

REGISTRATION BY RECIPROCITY

Table 10 shows the numbers of physicians registered in 1928 without examination on presentation of satisfactory credentials, which included a license issued by some other state board or a certificate of the National Board of Medical Examiners. In an increasing number of states the boards now accept a physician's credentials, if satisfactory, whether or not the state board issuing the original license returns the favor. These states are:

Arizona	Idaho	New Mexico
California	Michigan	North Carolina
Colorado	Nebraska	Pennsylvania
Delaware	New Hampshire	Texas
District of Columbia	New Jersey	

TABLE 10.—*Physicians Registered Through Reciprocity and Endorsement by State Examining Boards During 1928*

Number.....	....	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53
STATE	Total Regis. by Recip. Ea. State	Alabama	Arizona	Arkansas	California	Colorado	Connecticut	Delaware	Dist. Columbia	Florida	Georgia	Idaho	Illinois	Indiana	Iowa	Kansas	Kentucky	Louisiana	Maine	Maryland	Massachusetts	Michigan	Minnesota	Mississippi	Missouri	Montana	Nebraska	Nevada	New Hampshire	New Jersey	New Mexico	New York	North Carolina	North Dakota	Ohio	Oklahoma	Oregon	Pennsylvania	Rhode Island	South Carolina	South Dakota	Tennessee	Texas	Utah	Vermont	Virginia	Washington	West Virginia	Wisconsin	Wyoming	U.S. Govt. Depts.	Nat. Bd. Med. Ex.	U.S. Territories	Canadian & For.
Alabama....	39	..	..	..	..	..	..	..	2	..	7	..	..	1	..	..	2	4	..	1	..	..	..	3	..	..	..	..	..	..	..	..	..	1	..	..	1	1	2	..	12	..	..	..	1	..	..	..	..	..	1	..	..
Arizona.....	36	..	..	2	3	2	..	..	..	..	1	..	2	1	..	2	..	2	..	..	..	..	..	..	2	1	..	..	..	..	..	3	..	..	2	..	3	..	..	..	2	2	..	..	1	..	..	..	..	..	1	3	..	1
Arkansas...	18	..	..	..	..	..	..	..	..	..	..	..	3	..	..	1	1	..	1	..	..	2	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	8	1	..	..	..	1	..	..	..	..	..	..	..
California..	240	..	5	..	..	8	..	1	1	1	3	7	19	9	6	4	2	2	1	6	2	8	15	..	15	3	17	..	..	..	..	28	1	3	9	3	6	7	1	..	2	1	6	6	..	1	5	..	4	1	3	..	2	..
Colorado...	40	..	..	..	3	..	..	..	1	..	2	..	5	2	2	1	..	1	..	2	..	..	..	..	3	..	1	1	..	1	..	..	..	..	4	..	..	2	..	..	..	2	2	..	..	1	1	..	..	1	1	..	..	1
Connecticut	35	..	..	..	1	..	..	..	..	..	1	..	1	..	2	..	..	1	2	2	2	1	..	..	..	..	..	..	..	1	..	15	..	..	1	..	..	1	..	..	..	..	..	..	1	..	..	..	..	..	..	3	..	..
Delaware....	10	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..	..	..	..	..	..	..	..	..	2	..	..	..	..	..	5	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Dist. Colum.	18	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..	..	1	..	..	..	..	..	..	..	1	4	..	1	2	..	3	..	..	..	..	..	..	..	3	..	..	..	..	..	..	..	..
Florida.....	....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Georgia.....	19	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	3	..	..	..	..	..	..	..	..	..	2	..	1	..	1	..	3	..	3	..	..	..	..	..	..	..	..	..	3	..	..
Idaho.....	11	..	..	..	..	..	..	..	..	..	..	..	1	..	1	1	..	..	..	..	..	1	..	..	..	..	..	1	..	..	..	..	..	..	..	..	2	1	..	..	..	..	..	2	..	..	1	..	..	..	..	..	..	..
Illinois.....	112	1	..	1	3	2	..	..	..	..	..	..	..	4	15	..	1	..	1	4	..	12	3	..	20	..	6	..	..	..	1	1	..	..	5	1	..	1	..	..	..	3	..	..	..	1	..	1	4	..	4	16	1	..
Indiana.....	38	..	..	1	..	..	..	..	1	..	..	..	13	..	2	1	4	..	..	1	..	4	..	..	..	..	3	..	..	..	..	1	1	2	..	..	..	..	1	..	..	..	..	2	1	..	..	..	..	..	..	..	..
Iowa.....	34	..	..	1	..	..	..	..	..	..	1	..	3	1	..	1	..	..	..	..	..	2	4	..	5	..	10	..	..	..	..	..	..	..	..	..	1	..	..	..	2	1	..	..	..	..	..	..	..	..	..	2	..	..
Kansas.....	26	..	..	1	1	1	..	..	..	..	..	..	1	..	..	..	1	..	..	..	..	..	2	..	14	..	..	..	..	..	..	..	..	..	1	4	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Kentucky...	46	..	..	3	..	..	..	..	1	..	..	..	6	4	..	..	..	..	..	1	..	..	1	..	..	..	1	..	..	..	..	1	1	..	5	..	..	1	..	..	..	10	..	..	..	..	4	..	..	4	..	1	..	..	2
Louisiana...	13	1	..	..	..	..	..	..	2	..	2	..	..	..	..	..	2	..	..	..	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	2	1	..	..	..	..	..	..	..	..	..	..	..
Maine.....	12	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	4	1	..	..	..	..	..	5	..	..
Maryland...	31	2	..	..	3	2	..	..	3	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	1	..	1	1	..	1	..	..	1	1	..	..	3	..	..	2	4	..	4	..	..	..	..	..
Massachus's	31	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	31	..	..
Michigan....	90	..	1	1	5	2	..	..	7	..	..	..	10	3	9	1	1	..	..	2	1	..	5	..	4	1	2	..	..	1	..	1	..	1	12	2	..	4	..	..	..	2	..	2	2	1	1	6	..	..	..	..
Minnesota...	47	..	..	..	1	1	..	..	..	..	..	..	9	..	7	..	..	..	..	2	..	1	..	..	2	1	2	..	..	..	..	..	..	..	2	..	..	..	..	3	1	..	..	1	..	..	7	..	..	7	..	..
Mississippi..	29	3	..	1	..	..	..	..	1	..	1	..	2	..	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	16	1	..	..	1	..	..	..	..	..	..	..	..
Missouri....	73	..	..	4	1	3	..	..	..	..	1	..	5	..	3	20	4	..	..	..	1	2	2	..	..	..	7	..	1	..	4	..	..	2	..	..	..	..	..	..	6	..	..	..	1	..	..	..	..	..	6	..	..
Montana....	14	..	..	..	..	..	..	..	..	..	..	..	..	3	3	1	..	..	..	..	..	3	..	..	1	..	1	..	..	..	..	..	1	..	..	..	..	..	..	..	..	1	..	..	..	1	..	1	..	..	..	..	..
Nebraska....	6	..	..	..	..	..	..	..	..	..	..	..	1	..	3	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Nevada.....	10	..	..	..	1	..	..	..	..	..	..	..	1	..	..	..	..	1	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	1	3	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..
N. Hampsh'e	16	..	..	..	..	1	..	1	..	..	..	..	1	..	..	..	..	..	..	7	..	..	..	..	..	..	..	..	..	..	..	3	..	..	..	..	1	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..
New Jersey..	181	..	..	1	..	..	..	10	..	1	..	..	..	1	..	3	..	1	7	4	2	4	1	..	1	..	..	..	..	..	..	84	3	..	5	..	1	28	..	..	..	3	..	..	1	3	..	1	1	..	..	15	..	..
New Mexico.	18	..	1	..	3	..	..	..	..	2	1	..	1	..	..	..	..	..	..	..	1	1	..	..	1	..	2	..	..	..	..	..	..	..	1	..	..	..	..	..	..	1	3	..	..	..	..	..	..	..	..	..	..	..
New York...	213	1	..	2	6	..	4	..	3	1	..	..	12	6	4	..	..	3	1	5	11	3	6	..	..	..	1	..	..	14	..	..	1	..	13	1	1	9	3	1	..	5	4	2	3	7	..	..	1	1	..	69	5	4
N. Carolina	32	..	..	..	1	..	..	..	..	1	2	..	1	..	..	..	1	1	..	1	1	1	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	1	..	5	..	1	..	1	..	6	..	4	..	..	1	1	..	1
N. Dakota..	10	..	..	..	1	..	..	..	..	..	..	..	..	..	..	1	..	..	..	4	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	..	..	..	..	..	..
Ohio.....	111	..	1	4	1	3	..	2	3	..	5	..	7	7	2	2	10	..	1	7	..	14	3	..	3	..	4	..	..	1	..	7	..	..	..	..	..	3	..	..	..	7	3	..	1	1	..	3	2	..	..	4	..	..
Oklahoma..	39	..	..	4	..	..	..	..	..	2	1	..	3	..	..	4	2	2	..	..	..	4	1	..	4	..	..	..	..	..	..	..	..	..	2	..	..	..	..	..	..	1	3	..	..	2	1	1	..	..	..	2	..	..
Oregon.....	32	..	..	..	2	..	..	..	..	1	1	..	7	..	1	..	..	..	..	1	..	2	2	..	1	..	1	..	..	1	..	..	..	..	1	..	..	1	..	1	..	2	2	..	..	4	..	..	..	..	..	1	..	..
Pennsylv'ia.	51	..	..	..	1	..	..	..	1	..	..	..	3	2	..	..	1	..	..	5	2	6	1	..	1	..	..	..	..	4	..	5	..	1	..	..	..	..	..	..	..	..	..	..	..	2	..	1	..	..	15	..	..
Rhode Isl'd.	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	..	..
S. Carolina.	10	..	..	..	..	..	..	..	..	6	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..
S. Dakota...	11	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	5	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	4	..	..	1	..	..
Tennessee...	22	..	..	2	1	..	..	..	..	2	..	..	..	1	..	4	1	..	1	..	..	..	..	2	1	..	..	..	..	..	..	..	..	..	1	..	2	..	..	..	..	1	..	3	..	..	..	..	..	..	..	..	..
Texas.....	171	3	..	9	1	2	..	..	1	3	2	..	11	3	8	3	4	22	1	3	..	2	1	4	29	..	9	..	..	..	..	2	..	2	14	..	2	..	1	..	13	..	..	..	5	1	3	6	..	..	..	1	..
Utah.....	10	..	..	..	..	..	..	..	..	..	..	..	1	1	2	..	1	..	..	..	..	..	..	..	..	..	2	..	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..
Vermont....	4	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	1	..	..	..	..	1	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Virginia.....	30	..	..	..	..	..	..	..	4	..	2	..	..	..	..	..	..	..	..	5	..	1	..	..	1	..	..	..	..	..	..	4	2	..	..	..	..	1	..	1	..	1	..	..	..	..	..	3	..	..	3	2	..	..
Washington	66	1	..	..	6	..	..	..	..	..	3	..	10	..	1	1	1	1	..	2	..	10	2	1	3	1	4	1	..	..	..	..	..	1	1	1	6	2	..	..	..	..	..	1	1	..	..	..	..	..	..	5	..	..
W. Virginia.	26	..	..	..	..	..	..	1	..	..	..	..	2	..	..	..	4	..	..	3	..	1	..	..	2	..	..	..	..	..	..	..	..	..	3	..	..	2	..	2	..	..	..	6	..	..	..	..	..	..	..	..	..	..
Wisconsin...	60	1	..	..	2	2	..	..	1	..	1	..	15	6	3	1	..	..	1	2	..	4	5	..	2	..	1	..	..	..	..	4	..	..	1	..	1	..	..	..	2	2	1	..	..	..	..	..	2	..	..	..	..
Wyoming...	11	..	..	..	..	..	..	..	..	..	..	..	3	..	2	..	..	..	..	..	..	..	..	..	..	1	1	..	..	..	..	..	1	..	1	..	..	..	..	1	..	..	..	1	..	..	..	..	..	..	..	..	..	..
U. S. Territ. & Poss.....	4	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	..	..
Totals....	2193	15	8	37	45	31	6	3	44	8	44	12	159	51	77	46	52	46	9	67	34	83	73	14	118	8	78	3	1	25	1	164	25	7	78	31	17	89	8	15	8	109	32	15	17	59	14	28	41	3	17	200	9	9
Number.....	....	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53

This table shows the number of physicians registered in each state through the endorsement of other state licenses during 1928. Read from left to right, it shows the total number of physicians registered in the state named and the number of candidates coming from each of the states named at the top of the various columns. Read from above downward, the figures show the number of physicians who left the state named at the head of the column and went to each of the states named at the left in the corresponding lines, and at the bottom is given the total number of candidates leaving the state to go elsewhere. This bottom line shows also the states in which the physicians registered through reciprocity obtained their original licenses. The number licensed by reciprocity in 1928 was 2,193, as compared with 989 so registered in 1907.

the increase in the number of nondescript candidates is undoubtedly due to the separate board of osteopathic examiners, which was granted authority to register osteopaths as physicians and surgeons.

In Colorado, an amendment to the medical practice law is resulting in a decrease of nondescript candidates. In Arkansas, a new basic science law recently enacted gives promise of better conditions in that state. Illinois shows signs of better law enforcement which may bring about a much needed improvement. Marked increases in the number of nondescripts licensed in 1928 are

The registration without examination of diplomates of the National Board of Medical Examiners has increased from only two in 1917 to 200 in 1928. Altogether, 2,193 physicians were licensed in 1928 on the basis of "reciprocity," without being compelled to undergo a second trying examination.

Table 11 shows what boards granted the original licenses on the basis of which physicians were registered elsewhere under the reciprocity provision during the last five years. Of the 9,776 physicians so licensed, the largest number coming from any one state was 880, who obtained their original licenses in Illinois. The New York medical colleges have a larger number of graduates each year than those of Illinois, but only 560 physicians obtained original licenses in New York and registered elsewhere through reciprocity in the last five years. This is accounted for by the fact that New York has reciprocal relations with only eight states and Porto Rico, while Illinois has such relations with twenty-seven.

TABLE 11.—*Reciprocal Registration in Five Years (Showing What States Issued Original Licenses)*

State	Physicians Going from States Named During					Total
	1924	1925	1926	1927	1928	
Alabama	17	18	18	19	15	87
Arizona	2	4	1	0	8	15
Arkansas	15	31	25	32	37	140
California	16	31	49	46	45	187
Colorado	16	17	22	25	31	111
Connecticut	2	6	7	10	6	31
Delaware	1	1	2	4	3	11
District of Columbia	17	25	29	28	44	143
Florida	8	2	0	7	8	25
Georgia	55	34	32	41	44	206
Idaho	18	15	7	5	12	57
Illinois	248	181	161	131	159	880
Indiana	42	46	44	88	51	271
Iowa	73	73	73	68	77	364
Kansas	30	33	41	78	46	228
Kentucky	46	34	46	47	52	225
Louisiana	27	48	52	23	46	199
Maine	11	19	13	23	9	75
Maryland	55	49	61	56	67	288
Massachusetts	31	43	40	32	34	180
Michigan	64	57	68	68	83	310
Minnesota	59	58	59	58	73	307
Mississippi	26	19	27	11	14	97
Missouri	63	66	93	90	118	430
Montana	28	20	15	17	8	88
Nebraska	80	80	94	95	78	427
Nevada	8	3	3	3	3	20
New Hampshire	5	4	4	6	1	20
New Jersey	16	20	31	26	25	118
New Mexico	4	2	3	4	1	14
New York	92	72	66	166	164	560
North Carolina	10	14	15	25	25	89
North Dakota	18	10	11	13	7	59
Ohio	73	72	80	84	78	387
Oklahoma	30	38	43	28	31	170
Oregon	18	24	24	20	17	103
Pennsylvania	82	70	63	98	89	402
Rhode Island	1	5	4	4	8	22
South Carolina	17	16	12	27	15	87
South Dakota	16	11	5	12	8	52
Tennessee	70	84	88	80	109	431
Texas	35	42	33	35	32	177
Utah	16	11	12	14	15	68
Vermont	16	14	18	21	17	86
Virginia	44	39	44	56	59	242
Washington	19	29	19	12	14	93
West Virginia	24	31	25	25	28	133
Wisconsin	27	31	36	31	41	166
Wyoming	3	7	5	3	3	21
Government Services	34	33	20	57	17	161
National Board of Medical Examiners	49	67	112	167	200	595
U. S. Territories and Possessions	5	14	11	9	9	48
Foreign and Miscellaneous	5	11	7	8	9	40
Totals	1,787	1,784	1,873	2,139	2,193	9,776

This table shows that 9,776 physicians were registered through reciprocity during the last five years, and average of 1,955 each year. Since 1925 there has been an increase each year. Note the increasing numbers from the National Board of Medical Examiners. Of the 9,776 candidates registered during the five years, 880 obtained their original licenses in Illinois, the next largest number being 560 in New York.

STATE REQUIREMENTS OF PRELIMINARY EDUCATION

There are now forty-two states (counting Alaska territory) which have adopted requirements of preliminary education in addition to a standard four-year high school education. Of this number thirty-nine now require the two year standard. These states, the number of college years required and the time the higher requirements became effective, are as follows:

TABLE 12.—*State Requirements of Preliminary Education*

State Examining Board of	One Year of College Work		Two Years of College Work		A Hospital Internship	
	Affects Students Matriculating	Affects All Graduates	Affects Students Matriculating	Affects All Graduates	Affects Students Matriculating	Affects All Applicants
Alabama	.....	....	1915-16	1919	.....	....
Alaska	1914-15	1918	1918-19	1922	1912-13	1917
Arizona	1914-15	1918	1918-19	1922	.....	....
Arkansas [1]	1915-16	1919	1918-19	1922	.....	....
California	1915-16	1919	.....	....	.....	....
Colorado	1908-09	1912	1910-11	1914	.....	....
Connecticut	1915-16	1919	.....	....	.....	....
Delaware *	.....	....	.....	....	1919-20	1924
Dist. of Columbia †	.....	....	.....	....	.....	....
Florida	1914-15	1918	1918-19	1922	.....	....
Georgia	.....	....	1918-19	1922	.....	....
Idaho	.....	....	1915-16	1919	.....	....
Illinois	1915-16	1919	1919-20	1923	1918-19	1923
Indiana	1910-11	1914	1911-12	1915	.....	....
Iowa	.....	....	1911-12	1915	1919-20	1924
Kansas	1910-11	1914	1918-19	1922	.....	....
Kentucky	1914-15	1918	1918-19	1922	.....	....
Louisiana	1915-16	1919	1918-19	1922	.....	....
Maine	1915-16	1919	1916-17	1920	.....	....
Maryland	1914-15	1918	1918-19	1922	.....	....
Massachusetts *	.....	....	.....	....	.....	....
Michigan	1914-15	1918	1918-19	1922	1917-18	1922
Minnesota	.....	....	1908-09	1912	.....	....
Mississippi	1915-16	1919	1919-20	1923	.....	....
Missouri *	.....	....	.....	....	.....	....
Montana	1914-15	1918	1918-19	1922	.....	....
Nebraska *	.....	....	.....	....	.....	....
Nevada *	.....	....	.....	....	.....	....
New Hampshire	1914-15	1918	1915-16	1919	.....	....
New Jersey	1915-16	1919	1917-18	1921	1911-12	1916
New Mexico	1914-15	1918	1918-19	1922	.....	....
New York	1917-18	1921	1918-19	1922	.....	....
North Carolina	1914-15	1918	1918-19	1922	.....	....
North Dakota	.....	....	1908-09	1912	1913-14	1918
Ohio *	.....	....	.....	....	.....	....
Oklahoma	1914-15	1918	1917-18	1921	.....	....
Oregon	.....	....	1920-21	1924	.....	....
Pennsylvania	1914-15	1918	.....	....	1909-10	1914
Rhode Island	1914-15	1918	1918-19	1922	1912-13	1917
South Carolina	.....	....	1918-19	1922	.....	....
South Dakota	1908-09	1912	1911-12	1915	1920-21	1925
Tennessee	1916-17	1920	1918-19	1922	.....	....
Texas	1914-15	1918	1922-23	1926	.....	....
Utah	1913-14	1917	1922-23	1926	1921-22	1926
Vermont	1913-14	1917	1918-19	1922	.....	....
Virginia	1914-15	1918	1917-18	1921	.....	....
Washington	1914-15	1918	1918-19	1922	1914-15	1919
West Virginia	1917-18	1921	1921-22	1925	.....	....
Wisconsin	.....	....	1915-16	1919	1922-23	1927
Wyoming †	.....	....	.....	....	.....	....

* Require a four-year high school education or its equivalent.
† No fixed standard.
1. The higher standard in Arkansas evidently is not enforced by the sectarian licensing boards of that state.

It is noteworthy that all state requirements of college work have been established since 1908, or twenty-one years ago. Note that two states still have no definite requirement of preliminary education and in six states the requirement is still a four year high school education.

It is interesting to note also that thirteen states now require the completion of a year's internship in a hospital before the candidate is qualified to take the professional examination. All such requirements also have been adopted since 1909.

CONCLUSION

In the publication of these statistics, the endeavor has been to show the actual facts, a knowledge of which is always beneficial. Again, acknowledgments are tendered to the officers of state licensing boards for their ready cooperation and the complete reports they have furnished. The information here published should be of service to the medical colleges and the state boards as well as to the public.

BASIC SCIENCE BOARDS

STATISTICS FOR 1928

In Connecticut in 1925, as a result of the fraudulent license scandal in that state, a law was passed creating a state board of healing arts, or basic science board, to examine all those applying for licenses to care for sick people regardless of the particular school of medicine they were intending to practice.

In the same year a similar board was created in Wisconsin. In 1927 more or less similar basic science boards were established in Minnesota, Nebraska and Washington. At present, therefore, five states now have basic science boards. Such boards have been established only in states where not only is the licensing of those who seek authority to practice the healing art divided among several different boards but also those boards represent different standards of professional training and efficiency. The object of these boards has been to provide a means of insuring that all candidates seeking authority to care for sick and injured people shall first possess a reasonable knowledge of the sciences fundamental to the healing art as demonstrated by an examination in those subjects before they can enter the professional examination. The tabulation of the five basic science boards shows that examinations are given in anatomy, physiology and pathology by all boards; bacteriology, chemistry and diagnosis by two boards each, and hygiene by three boards.

TABLE 1.—*Subjects of Examinations by Basic Science Boards*

State	Examinations Required in						
	Anatomy	Bacteriology	Chemistry	Diagnosis	Hygiene	Pathology	Physiology
Connecticut	+	..	..	+	..	+	+
Minnesota	+	+	..	..	+	+	+
Nebraska	+	+	+	..	+	+	+
Washington	+	..	+	..	+	+	+
Wisconsin	+	..	..	+	..	+	+

All these boards functioned during the calendar year 1928 and the results of the examinations are set forth in the accompanying tabulation.

TABLE 2.—*Applicants Examined by Basic Science Boards During 1928*

Name of Board	Year Enacted	Regular Physicians		Osteopaths		Chiropractors		Totals	Examined—Passed	Examined—Failed	Percentage of Failures
		P	F	P	F	P	F				
Connecticut	1925	82	6	4	3	2	4	101	88	13	12.8
Minnesota	1927	245	35	6	11	1	1	299	252	47	16.0
Nebraska	1927	57	4	1	0	0	1	63	58	5	7.9
Washington	1927	101	1	10	1	4	2	119	115	4	3.4
Wisconsin	1925	101	14	2	0	1	5	123	104	19	15.4
Totals—Examined		646		38		21		705	...	..	....
Totals—Passed		586		23		8		...	617	..	....
Totals—Failed		60		15		13		...	...	88	....
Percentage of Failures		9.3		39.4		61.9		...	...	..	11.0

Altogether, in the five states 705 candidates were examined in 1928, of whom 617 passed and eighty-eight, or 11.0 per cent, failed. Of those examined, 646 were physicians, of whom 586 passed and sixty, or 9.3 per cent, failed. There were thirty-eight osteopaths, of whom twenty-three passed and fifteen, or 39.4 per cent, failed. There were also twenty-one chiropractors, of whom eight passed and thirteen, or 61.9 per cent, failed. Minnesota examined 252 candidates, the largest number, and also had the highest percentage of failures, 16.0. Of osteopaths, Minnesota examined seventeen, the highest number, and Washington examined eleven.

In addition to the 617 applicants licensed by examination, nineteen were licensed under reciprocal provisions, including fifteen in Minnesota and four in Nebraska. All of these were physicians. Of those registered by examination, however, 586 were physicians, twenty-three osteopaths and eight chiropractors.

TABLE 3.—*Certificates Issued by Basic Science Boards in 1928 by Examination and Reciprocity*

Name of Board	By Examination				By Reciprocity				Registered
	Physicians	Osteopaths	Chiropractors	Totals	Physicians	Osteopaths	Chiropractors	Totals	
Connecticut	82	4	2	88	..	..	..	..	88
Minnesota	245	6	1	252	15	..	..	15	237
Nebraska	57	1	..	58	4	..	..	4	62
Washington	101	10	4	115	..	..	..	..	115
Wisconsin	101	2	1	104	..	..	..	..	104
Totals	586	23	8	617	19	..	..	19	636

NATIONAL BOARD OF MEDICAL EXAMINERS

STATISTICS FOR 1928

The National Board of Medical Examiners was organized in 1915. It now consists of twenty-one members, including the three Surgeon Generals of the Army, Navy and Public Health Service, and one other representative of each of those services, three representatives of state medical licensing boards and twelve members appointed at large.

Up to Dec. 31, 1921, eleven examinations had been held as follows:

Date of Examination	Where Held	Total Examined	Passed	Failed	Percentage Failed
Oct., 1916	Washington	10	5	5	50.0
June, 1917	Washington	12	9	3	33.3
Oct., 1917	Chicago	28	22	6	21.5
Jan., 1918	New York	20	18	2	10.0
Apr., 1918	Ft. Riley, Ft. Oglethorpe	23	18	5	26.1
Dec., 1918	Chicago, New York	16	15	1	6.3
June, 1919	Philadelphia	52	51	1	1.9
Feb., 1920	Chicago, St. Louis	48	36	12	25.0
May, 1920	Philadelphia	60	46	14	23.3
Feb., 1921	Rochester, Minn.	16	11	5	31.3
June, 1921	Boston	40	37	3	7.5
Totals		325	268	57	14.4

Following the completion of each examination shown in the table, those who passed were granted the board's certificate, a total by Dec. 31, 1921, of 268.

NEW METHODS ADOPTED

Since 1922, however, the examinations have been divided in three parts, as follows: Part I, a written examination in the six fundamental medical sciences: anatomy, including histology and embryology; physiology; physiologic chemistry; general pathology; bacteriology, including parasitology and immunology; materia medica, and pharmacology. Part II, a written examination in medicine, including pediatrics, neuropsychiatry and therapeutics; surgery, including applied anatomy, surgical pathology and surgical specialties; obstetrics and gynecology; public health, including hygiene and medical jurisprudence. Part III, a clinical and practical examination in clinical medicine, including medical pathology, medical anatomy, applied physiology, applied pharmacology, clinical chemistry, clinical micros-

copy and dermatology; clinical surgery, including applied anatomy, surgical pathology, operative surgery and the surgical specialties of the diseases of the eye, ear, nose and throat; obstetrics and gynecology; public health, including sanitary bacteriology and the communicable diseases.

Parts I and II are written examinations held in any class A medical school, and part III is an entirely practical and clinical examination given by subsidiary boards in the following nineteen cities:

Albany	Denver	Nashville	Portland, Ore.
Baltimore	Galveston	New Haven	St. Louis
Boston	Iowa City	New Orleans	San Francisco
Chicago	Los Angeles	New York	Washington, D.C.
Cleveland	Minneapolis	Philadelphia	

The fees are as follows: registration fee, $5; part I, $10; part II, $15; part III, payable in two instalments: first payment, $15; final payment, if paid in cash, $40; if paid from loan fund, $45.

EXAMINATIONS IN PART I

Three examinations in part I were held in 1928, as follows:

Date of Examination	Total Examined	Passed	Incomplete	Failed	Percentage Failed
February	140	98	19	23	16.4
June	476	309	131	36	7.6
September	223	125	81	20	8.8
Totals, 1928	842	532	231	79	9.4
1927	702	452	159	91	13.0
1926	625	436	104	85	13.6
1925	608	400	50	158	26.0
1924	591	415	69	107	18.1
1923	507	349	77	81	16.2
1922	388	263	58	67	17.3
Totals	4,263	2,847	748	668	15.7

Altogether, 842 candidates were examined in 1928, as compared with 702 in 1927, 625 in 1926, 608 in 1925, 591 in 1924, 507 in 1923 and 388 in 1922. During the last seven years, under the new plan, 4,263 candidates were examined, or more than ten times as many as were examined in the six years of the old plan—from 1916 to 1921. Of all those examined in part I during the last seven years, 668, or 15.7 per cent, failed.

EXAMINATIONS IN PART II

Three examinations in part II were held in 1928, as follows:

Date of Examination	Total Examined	Passed	Incomplete	Failed	Percentage Failed
February	108	98	1	9	8.3
June	255	231	..	24	9.4
December	47	42	..	5	10.6
Totals, 1928	410	371	1	38	9.3
1927	361	314	1	46	12.1
1926	381	334	1	46	9.5
1925	372	369	..	33	9.6
1924	267	227	..	40	14.9
1923	192	170	2	20	10.4
1922	109	90	..	19	17.4
Totals	2,062	1,815	5	242	11.7

During 1928, 410 candidates were examined in part II, as compared with 361 in 1927, 370 in 1926, 342 in 1925, 267 in 1924, 192 in 1923, and 109 in 1922. Altogether, 2,062 candidates were examined during the seven years, of whom 242, or 11.7 per cent, failed.

EXAMINATIONS IN PART III

The examinations in part III in 1928, which were entirely clinical and practical, were held in several of nineteen subsidiary centers in different parts of the country (named in the preceding column). The results of the examinations were as follows:

Examinations of	Total Examined	Passed	Failed	Percentage Failed
1922	28	28	..	0.0
1923	76	75	1	1.3
1924	120	114	6	5.0
1925	217	206	11	4.1
1926	255	243	12	4.7
1927	294	272	22	7.5
1928	322	306	16	5.0
Totals	1,312	1,244	68	5.2

In 1928, 322 candidates were examined in part III, as compared with 294 in 1927, 255 in 1926, 217 in 1925, 120 in 1924, 76 in 1923, and 28 in 1922. During the seven years, therefore, 1,312 candidates were given the final practical examination and, of these, sixty-eight, or 5.2 per cent, failed.

Total Individuals Examined During Five Years

	Parts I, II and III, Excluding Duplications				
Year	Examined	Passed	Incomplete	Failed	Percentage Failed
1922	525	381	58	86	16.4
1923	775	594	79	102	13.4
1924	978	756	69	153	15.6
1925	1,167	915	50	202	17.3
1926	1,161	930	105	126	10.9
1927	1,248	947	142	159	12.7
1928	1,430	1,101	211	118	8.3
Totals	7,284	5,624	714	946	13.0

Omitting duplicates, there were 1,430 individuals who took the National Board's examinations during 1928, as compared with 1,248 in 1927, 1,161 in 1926, 1,167 in 1925, 978 in 1924, 775 in 1923, and 525 in 1922. The percentages of failures was 8.3. For the seven years, altogether 7,284 individual examinations were held and of these 946, or 13.0 per cent, were failures.

RECOGNITION OF THE NATIONAL BOARD'S CERTIFICATES

Holders of certificates from the National Board of Medical Examiners are registered without further examination in thirty-eight states and three territories, as follows:

Alabama	Iowa	New Hampshire	Porto Rico
Arizona	Kentucky	New Jersey	Rhode Island
Canal Zone	Maine	New Mexico	South Carolina
Colorado	Maryland	New York	South Dakota
Connecticut	Massachusetts	North Carolina	Tennessee
Delaware	Minnesota	North Dakota	Utah
Florida	Mississippi	Ohio	Vermont
Georgia	Missouri	Oklahoma	Virginia
Hawaii	Nebraska	Oregon	Washington
Idaho	Nevada	Pennsylvania	Wyoming
Illinois			

Diplomates licensed without further examination in the United States increased in eleven years from two in 1917 to 200 in 1928, 695 having been so licensed since the National Board was created.

IN GENERAL

Of the failures, it is noted that during the last seven years 15.7 per cent of the candidates failed in part I, 11.7 per cent of the candidates failed in part II, and 5.2 per cent of the candidates failed in part III. Altogether, 7,284 candidates participated in the National Board's examinations during the seven years since Jan. 1, 1922, and of these 946, or 13.0 per cent, failed.

Of those who took examinations in parts I and II during the seven years, 714 took examinations in all but one subject and are listed as incomplete until they have been examined in the one remaining subject. In the statistics, however, although mentioned separately, they are counted as successes and not failures.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

535 NORTH DEARBORN STREET ⸗ ⸗ ⸗ CHICAGO, ILL.

Cable Address ⸗ ⸗ ⸗ ⸗ "Medic, Chicago"

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SATURDAY, APRIL 27, 1929

STATISTICS OF STATE BOARD EXAMINATIONS

This week, for the twenty-sixth consecutive year, THE JOURNAL publishes statistics based on examinations held by the state medical boards during the previous calendar year. That the statistics are complete and reliable is due to the cordial cooperation received from the secretaries of the licensing boards, to whom sincere appreciation is due.

ACCURACY OF DATA

Reports of all examinations are carefully checked with lists of graduates furnished by medical school officials. In this way any errors in regard to the names of applicants, their medical schools or their years of graduation are promptly noted and the accuracy of the statistics is thereby assured. In the occasional instance in which the applicant did not graduate or had a record showing forgery or other misdeeds, the state boards are promptly notified. Credentials of physicians coming from abroad are also verified in a routine manner by direct correspondence with the medical schools from which they claim graduation. Thus all statements regarding both the medical education and the licensure of all physicians are based on official and reliable data.

UNRECOGNIZED MEDICAL SCHOOLS

Certain facts brought out in these statistics have been of unusual influence and value. In 1914 the first tabulation was prepared showing the nonrecognition of medical schools by state licensing boards, and since that time the number of medical schools recognized by all state boards has increased from thirty-three to seventy. Also the number of boards refusing to recognize institutions known to be of seriously low grade has increased from twenty-three to forty-six. This fact has justified the Council in no longer including the names of class C colleges among worthy or well recognized medical schools.

QUALIFICATIONS OF PHYSICIANS LICENSED

Another tabulation of unusual value was begun with the statistics of 1917, when a table was published showing for all states the relative numbers of physicians licensed who graduated from colleges rated in classes A, B and C. In the last group were included any undergraduates, osteopaths or graduates of other nondescript institutions who were licensed as physicians. The tabulation showed which states registered the largest numbers of such applicants.

Particularly effective was the tabulation published in 1922 showing graduates of class A, B and C colleges licensed by the various states during six years. This table revealed the fact that unusually large numbers of licenses were being issued by the Connecticut Board of Eclectic Examiners to graduates of inferior schools and diploma mills. Within a few months thereafter the commissioner of health of that state began activities and had revoked fifty or more licenses, five months before October, 1923, when the Missouri diploma-mill ring was exposed by the St. Louis *Star*. Since the publication of the tabulations just referred to, the number of graduates of low grade medical schools licensed each year has been greatly reduced. At the same time these tabulations revealed the increasing tendency to license osteopaths as physicians. The tables show also that under fair examinations larger percentages of such candidates fail. In California, on the contrary, under the favor of a separate board of osteopathic examiners, the failures have been considerably reduced.

IMPROVEMENT IN TWENTY-SIX YEARS

The requirements of medical licensure have been much improved since these statistics were first published in 1904. In that year only twenty of the boards had any requirement of preliminary education; of these, ten required a four year high school education. Now forty-seven states require a preliminary education, including thirty-nine which require two years of college work. Formerly graduation from a medical school was required by thirty-six states, where now such graduation is required in all states. Formerly, in several states, physicians seeking license were not required to take an examination; this is now required in all states. Formerly only fourteen states utilized their authority to refuse recognition to low grade medical schools; now forty-seven state boards are using that authority. Formerly twenty-seven state boards had established reciprocal relations with other states; now the boards of forty-six states have such relations. Now, also, the certificates of the National Board of Medical Examiners, established in 1915, are recognized in thirty-eight states and by the licensing boards of the Canal Zone, Hawaii and Porto Rico.

STRENGTHENING THE BARRIERS

For a number of years, several states to which fraudulent or low grade doctors heretofore found a ready admittance have established the essential safeguards against such applicants. Since the beginning of its fight in 1923, Connecticut has won its fight

against one hundred and seventy-four applicants who had fraudulently obtained licenses and the revocation of most of these licenses has been upheld by the courts. The securing of an effective basic science law has added to the safeguards against ignorant and untrained practitioners.

In Florida the issuing of fraudulent diplomas and licenses by the secretary of the former Board of Eclectic Medical Examiners has been vigorously dealt with, through the conviction of George A. Munch of using the mails for fraudulent purposes. As the result of an adverse decision by the supreme court, a second trial was necessary, when Munch was again convicted, fined $1,000, and sentenced to five years in the penitentiary.

In Colorado an amendment to the practice act, which became effective last January, has considerably improved licensure in that state and now, in Arkansas, the enacting of a basic science law gives promise that the much needed improvement of licensure in that state may be made.

In Missouri, conditions are still unsatisfactory since two new institutions have been chartered evidently as successors to the two diploma mills closed by the courts two years ago. The Missouri state board also is reported recently to have licensed, under peculiar circumstances, four graduates of the now defunct Kansas City College of Medicine and Surgery, which heretofore was declared as not recognized by the Missouri board.

BASIC SCIENCE BOARDS

Formerly there were several states which had separate boards for regular, homeopathic and eclectic examiners. Gradually these separate boards have given way to single composite boards. Arkansas, however, still has a separate board for each of the three groups. Then also through persistent hammering in Arkansas —as in other states—legislatures have been induced to grant separate boards of examiners to osteopaths, chiropractors and certain other groups of practitioners. In each of six states which have several such boards, an attempt at correction has been made through the creation of basic science boards before which all applicants for licensure are required to pass an examination in the basic sciences before they can be admitted to the professional examination of any board. It is still too early to express a reliable opinion regarding the effectiveness of these boards, but the statistics published this week are more favorable than were those published a year ago. Of course, such boards are unnecessary in states having single boards which pass on all candidates seeking authority to practice the healing art. In states having multiple boards, however, the establishing of basic science boards appears to be advisable. An evidence of this is the expressions of alarm regarding basic science boards reported from a certain group of pseudomedical practitioners. It is hoped that eventually there can be a single board in each state which will establish one standard of qualifications with which all those seeking the right to practice the healing art will have to comply. The statistics published this week suggest that possibly some progress is being made toward that end.

DAMAGES FOR COCKROACHES

A man inquired at a drugstore, desiring to purchase ten thousand cockroaches, five thousand bedbugs and a similar number of assorted insect pests. He explained to the druggist that he was about to move from an apartment in which he had resided for several years, and that the lease signed by him demanded that he leave the apartment in the same condition as that in which he found it. The British courts [1] have just awarded £481 damages to a woman on the ground that the encouragement of cockroaches by neighbors on a lower floor and the consequent invasion of her premises by numbers of these insects had produced in her insomnia and nervousness, damaged her rooms and her curtains, and caused her considerable work in an attempt at extermination. Her claim included £110 special damages for repairs, materials, cleaning and medical attendance.

In the course of the investigation, her medical attendant asserted that she had been bitten by the cockroaches, and that as a result she had a severe dermatitis. However, an expert witness for the defense asserted that the cockroaches would not bite, and that the dermatitis resulted from a sulphur ointment. Another expert witness for the defense, Mr. Ernest Crabbe, fellow of the Entomological Society of London, produced a box of the cockroaches which he had collected on the premises. These were a species known as *Blatta orientalis,* which he asserted would not bite or pierce the human skin, but which he said would eat bedbugs. Mr. Crabbe explained that both the cockroach and the bedbug had appeared in England in 1583, that they were practically omnivorous, and that they would not only eat organic refuse of all types but also each other. The statement of the judge to the jury brought out the fact that the plaintiff's apartment was above a café operated by the defendants, that refuse permitted to remain in this café had attracted the cockroaches, and that this refuse was present in excessive or unusual quantity. Since the complaint was originally filed, the café had been demolished and a moving picture house erected on the site. The decision of the British court may serve several useful purposes. It will force many owners of apartment houses to control the spread of the menacing insect called *Blatta orientalis,* and will develop new investigations into its manners and habits.

The experts say that there are a thousand different kinds of cockroaches, more or less. Four are domesticated and are happy around a home. They vary

1. Cockroaches in a Flat, Lancet **1**: 683 (March 30) 1929.

from the rather small reddish insect found in many American kitchens and basements to the German cockroach called the croton bug. This is the slipperiest, quickest, smartest and meanest of the lot.

Cockroaches, like some human beings, do most of their wandering at night, soiling everything they touch and leaving a permanent nauseating odor. They migrate from one apartment to another, following water and drain pipes from cellar to roof, at least in apartments of moderate height. No doubt in the tremendous fifty-story barracks which constitute living quarters for many Americans today, persons on the higher levels are seldom troubled by cockroaches since the insects must die of old age before climbing to the twenty-fifth story.

The best poison for a roach is sodium fluoride, finely ground and mixed with meal and liberally dusted in all corners, drawers, closets and runways. In an article on the cockroach, Rosenau makes the following disingenuous statement:

> Many roaches may be trapped in a deep, smooth basin or jar. Sticks leading up to the rim of the trap make runways for the insects, which slip into the trap but cannot get out. The best bait for these traps is stale beer. The croton bug is too wise to be thus trapped.

RADIOSENSITIVITY OF BONE

Because of its hardness and strength, to which characteristics it owes its adaptation to the physiologic function it has to perform, and because of the length of time it can withstand decay and other destructive agencies, bone is commonly considered the most resistant tissue of the body. It is, however, only as properties of dead material that the hardness and strength and resistance of bone are apparent. As a living tissue, bone yields readily to constant pressure, even of softer tissues, by undergoing atrophy and resorption, and it may be quickly destroyed in inflammatory and neoplastic processes.

Resistance to radiation has also been ascribed to bone. Older tables of roentgen-ray dosages gave for bone a dose as much as eight times that for the skin of the face. With widespread use of the more deeply penetrating hard roentgen rays, bone has been found to be not immune to injury. Ewing [1] has described a form of chronic osteitis following irradiation, a proliferative process which is probably secondary to harm done rather than a primary stimulative reaction. More recently, Wynen [2] has discussed the occurrence of late necrosis in bones subjected to therapeutic irradiation by roentgen rays. The process has been noted in the jaw and in bones connected with the exterior by fistulous openings; in the first case in bone easily invaded by bacteria after harm has been done, and in the second case in bone that is already infected but further injured by radiation. Experimentally it was found by Wynen that the rootlets of seedlings were more severely injured when surrounded by bone and subjected to radiation than when surrounded by an equally thick layer of muscle, an action ascribed to the emission of secondary rays by the calcium of the bone. Similar secondary radiation, resulting in the death of individual bone corpuscles and in injury to the capillaries, is held responsible for the harm to bone that may result in late necrosis under the further influence of bacterial invasion. Too intensive irradiation of bone apparently introduces an element of danger which must be borne in mind in the application of the therapeutic procedure. Wynen warns especially against too heavy dosage in the treatment of bone and joint tuberculosis.

Similar sensitivity of bone to radiation has been noted by Martland and his collaborators [3] as the result of the action of radioactive substances deposited in the bones of painters of luminous dials. In these unfortunates, not properly warned or protected against the hazards of a new occupation, widespread necrosis of the jaw occurred. Here also, as is the case after roentgen irradiation, secondary bacterial invasion of bone injured by radiation is a factor. The injury to bone in dial painters is much more severe than has yet been described after roentgen irradiation, because the action of the deposited radium and mesothorium compounds is continuous over a period of years, the bones of a body exhumed after five years of interment having been found to be strongly radioactive by St. George, Gettler and Muller.[4] Such continuous action leads not only to bone necrosis but also to diffuse radiation osteitis and to injury to the hematopoietic system, the latter manifested by an anemia of either regenerative or aplastic type, which is one of the principal features of the effects of radioactive substances. As still another possibility in the chain of evils caused by the deposition of radioactive materials in bone, Martland's [5] most recent contribution calls attention to the occurrence of osteogenic sarcoma of bone in two dial painters. The proof that the tumor was actually caused by the presence of radioactive substance in the bone is not and cannot be absolute. About 70 per cent of the deposited material is mesothorium, the half-life of which is six and seven-tenths years. If the victim escapes death from bone necrosis or anemia during the early period of more intense radioactivity, he still remains subjected to a less intense degree of activity over a prolonged period. Such long continued but milder irritation may well be the cause of tumor formation, a possibility deserving consideration in the future history of those subjected to the intake of radioactive materials that may be deposited in the osseous system.

1. Ewing, James: Radiation Osteitis, Acta radiol. 6: 399, 1926.
2. Wynen, W.: Die Radiosensibilität des Knochens in ihrer Bedeutung für die Röntgenbestrahlung der Gelenktuberkulose, München. med. Wchnschr. 76: 244 (Feb. 8) 1929.
3. Martland, H. S.; Conlon, Philip; and Knef, J. P.: Some Unrecognized Dangers in the Use and Handling of Radioactive Substances, J. A. M. A. 85: 1769 (Dec. 5) 1925.
4. St. George, A. V.; Gettler, A. O., and Muller, R. H.: Radioactive Substances in a Body Five Years After Death, Arch. Path. 7: 397 (March) 1929.
5. Martland, H. S., and Humphries, R. E.: Osteogenic Sarcoma in Dial Painters Using Luminous Paint, Arch. Path. 7: 406 (March) 1929.

Current Comment

MEDICAL LICENSURE IN CONNECTICUT

Six years ago, statistics published in the annual State Board Number of THE JOURNAL revealed the fact that the Connecticut Board of Eclectic Medical Examiners, instead of limiting its examinations to graduates of eclectic medical schools, had apparently thrown its doors open to all applicants. In the previous four years, because only one bona fide eclectic college continued to exist, this board had licensed, respectively, five, one, two and one graduates. In 1921, however, the number suddenly jumped to sixty-six, and in 1922 to seventy-four. Why this sudden change? Reports which could not be had directly from the eclectic board were obtained through the commissioner of health, whose duty it was to issue all licenses. In 1922, the attention of the health commissioner was called to the sixty-six licenses issued during 1921 and to the fact that graduates of regular schools had been accepted as well as graduates of eclectic medical schools. Strenuous as his efforts were, however, he was unable to secure the essential legal support and nothing was accomplished. A year later, however, a new governor was in the chair and a new health commissioner had been appointed. The latter's attention was called to the many graduates of inferior schools who were pouring into the state and evidence was provided to show that some of those licensed had not obtained passing grades in any bona fide medical school. The attention of the governor was promptly called to the situation; a special committee was appointed to take the matter in charge, and by June, 1923, about fifty licenses had been revoked on the charge of having been fraudulently granted. The influence exerted by the medical license mill was shown by the fact that a bill passed both houses of the Connecticut legislature validating twenty-three of the revoked licenses—and was promptly vetoed by the governor. During the fall of 1923, a reporter of the St. Louis *Star* had been quietly investigating the diploma mill situation in Missouri, and on October 20 published a complete exposure of the institutions involved, including a nominally eclectic affair, the Kansas City College of Medicine and Surgery, always listed as regular, the St. Louis College of Physicians and Surgeons, and the defunct medical school of the National University of Arts and Sciences. A special investigating committee previously appointed in Connecticut was replaced by a special grand jury, and within a year 171 licenses were revoked and three others were voluntarily surrendered. For six years a legal battle has been carried on, with the result that 119 licenses have been permanently revoked and their holders ousted from medical practice in the state. Of the fifty-five remaining, injunctions were obtained in four cases preventing revocation and forty-five appeals are still pending, leaving only six of the 174 whose appeals were sustained or for whom errors were found, and who are therefore permitted to continue in practice. Of those whose appeals are still standing, thirty-seven have remained out of the state—out of reach of the state courts. Connecticut has carried on so vigorous a housecleaning, indeed, as to prevent for all time any repetition of such practices. Through the creation of a state board of healing arts, also, Connecticut has provided a safeguard against not only the unqualified graduates of low grade medical schools but also those from the various pseudomedical institutions. The history of the six year legal battle in Connecticut which has resulted since the exposé of 1923 is a reflection of the kind of campaign required to give American citizens clean, scientific medicine.

THE CUSHING BIRTHDAY VOLUME

The history of medicine in America presents few instances of tributes of appreciation to distinguished teachers that are as impressive as the special number of the *Archives of Surgery*—the April issue—in honor of the sixtieth birthday of Dr. Harvey Cushing. All of the eighty-two contributors are former pupils of Dr. Cushing who came under his tutelage and inspiration either at the Johns Hopkins University School of Medicine or subsequently at the Peter Bent Brigham Hospital of the Harvard University Medical School in Boston. Dr. Cushing represents the fourth successive generation of physicians in the same family. His father, Dr. Henry K. Cushing, was professor of obstetrics and gynecology at the Western Reserve University School of Medicine in Cleveland. The contributors to the testimonial volume consider themselves pupils of Professor Cushing in the sense that "from their period of affiliation with him they derived stimulation and inspiration of such a quality as to influence largely their future careers." The list includes not only many names already significant in American surgery but also physicians in other fields who have been marked by their association with a notable teacher. The world in general will join the medical profession in congratulations to one who is not only a brilliant surgeon and a beloved teacher but also a versatile writer and essayist. An active mind may yet contribute much to a civilization sadly in need of a scientific philosophy of living.

ARKANSAS ENACTS A BASIC SCIENCE LAW

Arkansas has enacted a basic science law, to relieve the situation brought about by the presence of five boards, each authorized independently of the rest to issue licenses to practice the healing art. Each such board has heretofore been the sole judge of the credentials of candidates applying to it for licenses. Under the basic science law, however, no licensing board can examine an applicant until after the basic science board has been satisfied that he is not less than 21 years old; is of good moral character; was graduated by an accredited high school or had an education equivalent to that required for such graduation, before he began the study of the basic sciences, and has a comprehensive knowledge of the sciences of anatomy, physiology, chemistry, bacteriology and pathology. If the applicant has passed an examination in the sciences named, in another state, before a basic science board or licensing board, the Arkansas basic science board may, in lieu of examination, accept evidence of that

fact; otherwise, the board must examine the applicant. The fact that an applicant cannot appear before a licensing board unless his preliminary qualifications have been certified by the basic science board does not in any way diminish the authority of the licensing board to scrutinize the qualifications of applicants when they do appear. A person who was not already licensed in Arkansas when the basic science act was passed cannot lawfully practice without obtaining a basic science certificate as well as a professional license. Each of the five licensing boards is required hereafter to report annually to the secretary of state all persons licensed by it during the preceding year and to certify to him after each examination the names of all persons licensed since the preceding list was submitted. The secretary of state must then send copies of every such list to the sheriff and the prosecuting attorney of each county. The basic science act makes it specifically the duty of every sheriff, police officer and peace officer to investigate all supposed violations of it and requires the attorney general and the several county attorneys to prosecute all violations. The act is the result of an energetic campaign by the Arkansas Medical Society and should go a long way toward raising the standards of those who practice the healing art in that state.

Association News

THE PORTLAND SESSION

Golf Special from Chicago to Portland

A special train for the benefit of golf enthusiasts who will attend the annual session of the American Medical Association at Portland, Ore., will leave Chicago over the Chicago and Northwestern Railroad at 10 p. m., Saturday, June 29. Stops will be made at Omaha, Denver, Salt Lake City, Lake Tahoe, Del Monte, San Francisco and Medford. Games will be played on famous courses at each of these stops and the party will arrive at Portland at 7:30 a. m., July 7.

After the Portland Session the party will leave Portland at 4:30 p. m., July 12, by the Great Northern Railway, stopping at Vancouver, Everett, Spokane, Glacier National Park, Fargo and Minneapolis, and disbanding at Chicago, Saturday morning, July 20. Two days will be spent at Glacier National Park.

Complete information may be secured from Dr. John P. DeWitt, 112 Shorb Avenue, North West, Canton, Ohio, or from Mr. Hugh H. Gray, General Agent of the Southern Pacific Lines, 165 Broadway, New York.

Special Train from Massachusetts

The Massachusetts Medical Society is arranging for transportation for the accommodation of its fellows and friends who will attend the Portland Session. Information may be secured from the secretary of the Massachusetts Medical Society, Dr. W. L. Burrage, 182 Walnut Street, Brookline, Mass.

MEDICAL BROADCAST FOR THE WEEK

The American Medical Association Morning Health Talks and Evening Health Hints from Hygeia

The American Medical Association broadcasts daily at 10:45 o'clock in the morning, central daylight saving time, over Station WBBM (770 kilocycles, or 389.4 meters).

The program for the week of April 29 to May 6 will be as follows:

April 29. "Medical News," by Dr. C. F. Hammond.
April 30. "Quack Cancer Cures," by Dr. Arthur J. Cramp.
May 1. "Dreams," by Dr. R. G. Leland.
May 2. "Do Poor People Like Bad Housing," by Dr. R. G. Leland.
May 3. "Mother Indiana" (Part 1), by Dr. John M. Dodson.
May 4. "Mother Indiana" (Part 2), by Dr. John M. Dodson.

Evening Health Hints from Hygeia at 8 o'Clock, Central Daylight Saving Time

April 29. Preventing Poor Appetite in Children.
April 30. What to Do for Spring Fever.
May 1. Height of School Buildings.
May 2. Ten Commandments of Health.
May 3. Building Strong Baby Teeth.
May 4. Preventing Tuberculosis in Children.

ANNUAL CONGRESS ON MEDICAL EDUCATION, MEDICAL LICENSURE AND HOSPITALS

Twenty-Fifth Annual Meeting, held in Chicago, Feb. 18, 19 and 20, 1929

(Concluded from page 1357)

DISCUSSION ON PAPERS OF DRS. DARRACH, SCHMITT AND PARNALL

DR. D. J. DAVIS, Chicago: At the University of Illinois College of Medicine we have been very much interested in the fifth year internship requirement. It is a state requirement and has been in operation for seven or eight years. This year may be taken as an internship or students may register in the graduate school for research work for a master's degree. The university does not absolutely require an internship; the state board requires an internship. The supervision of the work is largely in the hands of a fifth year committee. Any matters that come from the hospital are referred to the fifth year committee. Matters of discipline are turned over to a discipline committee. After analyzing the situation during this period, we brought the entire matter before the faculty for general discussion. Practically all the interns said that they were in favor of this. The hospitals without exception said that they favored a fifth year required internship. So far as we have been able to determine, opposition or objection to this requirement comes from universities, and, it seems to me, from universities which have not tried this plan out in a practical way. We have had very little trouble in connection with hospitals. We recognize the list of hospitals recommended by the American Medical Association. There is no doubt that this requirement has much to do with the hospitals' attempt to furnish better service to the interns. When there is this relationship between the university and the hospitals, the latter feel that they are under real obligation to the university, and they show a very fine spirit in attempting to live up to the standards. The hospitals invariably report to us that these students show a better attitude, and they are very much more careful in their conduct.

DR. W. T. COUGHLIN, St. Louis: I have had experience in hospitals where some of the interns had not yet completed a course; that is, their degrees were being held back until the completion of the intern year. As to grading, if Dr. A wishes to be very popular with the boys, everybody gets a grade of 100. Dr. B is not so concerned, is probably thick-skinned and has perhaps already arrived; he is a little more careful how he grades them. There is a question in my mind about the benefit to be derived by the hospital and, of course, by the patient from having that kind of a system. If the degree is withheld until the end of his service in the hospital, the staff has a hold on him that it does not have on the man who is already a physician. That is something that is worthy of consideration. To hold up as an absolute requirement that every one should serve an intern year is also open to discussion. The great benefit, as I see it, is to the hospital and to the patient. It is a great benefit to members of the staff to have men about them on whom they can rely to carry on as they should. Just what is the best solution for all concerned cannot be determined very quickly, but it should be carefully considered. No hospital should be recognized as being fit for interns unless it has a library. That seems to have been overlooked by the committee which has classified hospitals and accepted them as being fit hospitals for the training of interns. They are without a library, to say nothing of the absence of the pathologic museum. I think that those are two very essential requirements for a hospital, if it is to be considered as a hospital that is fit for the training of interns. I am inclined to believe that it would be better for all concerned if the degree

were withheld until the end of the intern year. I am not in favor of a straight service for a man in his first year. He should be given a good rotating service, divided between surgery, medicine and obstetrics, chiefly. It is necessary for him to have a special service in roentgenology. He will get that as he goes through a good general surgical service.

DR. JOSEPH F. HIGGINS, Grand Island, Neb.: The statement may appear in the state university's rules that all instruction shall be given within the state, and to attempt to enforce an academic requirement outside of the state might not be considered within the power of those authorities. The question of maintaining an academic requirement of this kind also brings up the question as to whether one can maintain proper academic supervision of the work. It seems to me that the withholding of a degree of doctor of medicine for a year carries with it the obligation of academic supervision of the student's work, comparable to that in other academic work. I raise the question of whether such supervision is possible, though it may be done very satisfactorily. In a strict sense, the work cannot be supervised. The question of legal complications which are involved, such as reciprocity, will also come up. In some states a year of internship after the degree has been granted has been sufficient to warrant reciprocity; whereas in other states if the student does not have that degree before the year of internship, reciprocity will not be granted. My final conclusion is that it is more within the province of the state medical board to make such a requirement for the license to practice medicine than of the medical school to maintain it as an academic requirement.

DR. NATHANIEL W. FAXON, Rochester, N. Y.: I was very much interested in Dr. Darrach's paper because it seemed to me that I could sense, in his uncertainty of mind or lack of desire to reach firm conclusions, the same state of mind I went through myself as chairman of the Intern Committee of the American Hospital Association. I started out with a more or less preconceived idea that only one type of internship should be decided on, and rather with the inclination to believe that the fifth year should be required as a prerequisite for the medical degree. As I studied the situation, I felt a growing disinclination to standardize or lay down rigid rules. Instead of favoring the rotating internship I became firmly convinced that latitude should be given. In some cases the rotating internship was best for the hospital and for the intern. In another hospital I was just as firmly convinced that a straight service served the purpose much better. I believe now, as I did four years ago, when the final report was made, that that latitude is desirable. I think the attempt to make rigid requirements for the internship is undesirable.

DR. E. H. CARY, Dallas, Texas: I have had an opportunity to appreciate the value of this fifth year requirement on the part of the university. I feel that an institution should require all that it can require of its graduates at the end of the fourth year. As far as they can, they should pass on their capability of being physicians. They should have a man realize that much more is expected of him in his fifth year, and that he is to be taken seriously and to be supervised and carefully watched. That contributes more to a man's development into a better physician than leaving him to do largely as he pleases.

DR. BURTON D. MYERS, Bloomington, Ind.: I got much consolation from the papers of Drs. Darrach and Schmitt, for we at Indiana have recently voted for this fifth year. Ninety-eight or 99 per cent of our boys were already taking internships voluntarily, making their own selection. If a fifth year is being required, the faculty may expect trouble. As to the breaking of contracts, I think the student is not altogether to blame, because when a hospital goes into competition with a sister hospital for the service of that student and outbids the sister hospital one cannot blame the intern, who has already been at great expense for medical education, if he feels that here is an opportunity of checking expenses for his further medical career. We voted for the fifth year largely because we feel that our men ought not to break contracts even under the solicitation of neighboring and competing hospitals. Some one spoke of hospitals that did not have library facilities. If such a hospital exists to which an intern has been sent, certainly there has been a slip somewhere, because under the rules of the American Hospital Association, no hospital can be standardized that does not have an adequate library.

DR. MERRITTE W. IRELAND, Washington, D. C.: I am very much interested in the question of interns and in the required fifth year before graduation. It affects the U. S. Army Medical Department in this way: We have fifty or sixty interns that we take from your colleges every year and place in five or six of our hospitals. They are given a position in the reserve corps. We cannot give a commission in the reserve corps to a medical man who has not a degree in medicine. We have come in conflict with some of the good colleges in the country in not being able to accept their students on that account. The University of Minnesota and Rush Medical College recently relieved us of that embarrassment by giving a degree that is acceptable to the War Department. So far as the keeping of the contract is concerned, after they come into the medical department, we try to maintain the same rules that are maintained in civil hospitals. We are responsible, after we accept these men, for giving them a year's internship, so that if they do not stay with us they can go out and practice medicine.

DR. R. C. BUERKI, Madison, Wis.: We have fourteen rotating internships each year. We keep only two of our own men. As a result we go outside to get others. In the past five years, three men that we felt should not have been passed on as professional men have all been from fifth year schools. In one instance the man was out only a short time when we received a complaint from the community in which he settled.

DR. HUGH S. CUMMING, Washington, D. C.: It seems to me that when a student is accepted for graduation in medicine, it is hardly right to keep his degree from him until he shall have served one year as an intern, unless there is some guarantee on the part of the school that it is going to find him some place in which to serve his internship.

DR. E. P. LYON, Minneapolis: The required intern year was adopted by the University of Minnesota as a faculty rule about 1911, and became effective with the class of 1915. We are still in favor of it. From the start, the discussion was between those who would take a strict view in regard to the substance, government and supervision of education, and those who would look more on opportunities by which a man might educate himself. It is perfectly true that many of our students go to hospitals where the supervision is less than they would have in our own hospital. But surely by the time a man is in his fifth year, he must begin to supervise himself. I have always looked on the intern year as a gradual tapering off time. I have always been struck by this thought: What is the fifth year for? Everybody will say it is an educational year. Who are the people who ought to supervise and control education? At once one answers, "The universities." At the present time, in this assembly, the thought is dominant that the state boards should not supervise education. They are there to test the final results of it, but not to supervise or qualify it. Therefore, it seemed to me that as an educational requirement it is entirely proper that the intern year should be a part of the university requirement. From the beginning we have given the men, at the end of the fourth year, the degree of bachelor of medicine, with the degree of doctor of medicine at the end of the fifth year. That had other incidental advantages, in that the class could graduate together, and we preserved that social advantage and class feeling. The actual administration of the matter depends on having a proper committee and a faculty man to do it. Dr. Litzenberg has given a great amount of time and attention to it in our institution. Unless an institution has some one who will do that, I am sure it would not work so well. He has gone beyond the accepted list, and by various means has determined whether a given hospital is a fit place for an intern to be educated. Then I have been much influenced by the reflex effect on the intern and on the hospital of the fifth year being an educational requirement. The intern and the hospital and staff each look on the proposition in a different light, when it is considered an educational feature rather than a service feature. I have not the least doubt that there has been a vast change in the attitude of hospitals toward their educational responsibilities since we began to look on the internship as an educational

year. One may say that it does not make any difference whether the intern year is a state board requirement or an educational or university requirement. But it seems to me it is more naturally the educational requirement, and I think it is a proper requirement for the M.D. degree.

DR. LOUIS B. WILSON, Rochester, Minn.: As a member of the Council on Medical Education of the American Medical Association, it is my duty to vote on the approval of certain hospitals for internships. We approve a lot of them. I have my doubts sometimes when we approve them. But I have much greater doubts in many instances when the interns come to me concerning a fellowship, and tell me about the service they have had in those hospitals. I have a strong suspicion that only about 10 or 15 per cent of the hospitals I approve with one hand would I approve with the other. That may be pretty strong criticism. It is not based on actual figures. It is based on the stories which about 1,200 graduates tell me each year. I see approximately from 1,200 to 1,500 medical graduates each year, and interview them concerning their graduate work. One of the first questions we ask is regarding the kind of service they have had in hospitals or laboratories. As to whether the internship should be required for the degree, I strongly believe in it. But I still more strongly believe in the importance of university faculties interesting themselves in the kind of internship which the student has. It seems to me that four years' intimate association with the faculty of any medical school is all that we ought to force on any medical student. If we are going to have that delightful flexibility in medical education which we all have admired so much in German medical education, here is one place where we can get it. The policy that Dr. Litzenberg has followed at the University of Minnesota is a very desirable one. Dr. Litzenberg always keeps his "poor pups" at home and sends his good ones somewhere else. He is afraid to trust his poor ones anywhere else, and he wants the good ones to have a better opportunity. That seems to be an excellent policy. There is another aspect which occurs to me. A great many youngsters come to me in the junior and senior years for advice regarding their future medical work. I find that many of them have had very little advice, and feel that they are unable to get any except inadequate advice from their deans or the members of their faculty concerning the proposition. Whatever attitude the medical schools take toward the fifth year as a requirement for the M.D. degree, one cannot escape the responsibility for a careful study of the hospitalization, and especially a careful and critical scanning of the list which is compiled by the Council on Medical Education of the American Medical Association.

DR. W. S. LEATHERS, Nashville, Tenn.: I have been very much interested in watching our students from the standpoint of their discriminating judgment in selecting hospitals for internships. I feel very confident that in many of our schools these young men are themselves forming quite a correct opinion relative to the hospital in which they want to serve as intern. This has been one of the most encouraging things that I have observed in medical students during the last few years. I think that those of us who are assuming responsibility relative to the classification of hospitals should keep in mind the analysis and discriminating judgment which medical students are today assuming, relative to hospital service. They are by no means uninformed. They are working this thing out for themselves more satisfactorily than we think they are, at least among the better class of medical students. So far as the licensing boards are concerned, they ought to assume a flexible attitude to this whole proposition, and should not take a position, unless it is illegal, which will discourage those schools which deem it advisable to require this fifth year. So far as Vanderbilt University School of Medicine is concerned, practically all of our students take the internship. Many of them take two, three and four years of internship in hospitals. We have not, therefore, seriously considered the advisability of requiring the year of internship. In fact I am sometimes of the opinion that we are imposing too much uniformity on medical students in matters of this sort. We are getting into our medical schools men who have literary degrees. They are really graduate students. They have the capacity to think and analyze problems for themselves. Therefore, it seems to me that we ought to throw these men on their own responsibility a good deal in matters of this sort. I wonder whether or not we are gaining anything by requiring of medical students this year of internship, as it is carried out today in schools of medicine. I am inclined to think the result probably would be just as good if we did not impose this requirement, so far as the advancement of medical education is concerned.

DR. SPENCER FREEMAN, Chicago: Dr. Wilson mentioned that the list of hospitals approved for internship by the Council on Medical Education and Hospitals is not all that it should be. I agree with him. The fact of the matter is that it is a very difficult thing to arrive at a satisfactory decision as to whether a hospital should be approved or not on the basis of the inspection which we are usually able to make. Inspection, necessarily, covers only a few hours of time, and it is impossible to find out what the hospital is actually doing in the way of educating the intern. One of the reasons we have difficulty is that while we have a book or a pamphlet called "Essentials in a Hospital Approved for Interns," most of the things stated therein are "should be's" and not "must be's." The statement is made, "There should be a library, and it should consist of a minimum of ten periodicals received regularly. There should be at least a small collection of medical books of fairly recent publication," and so forth. The same thing applies to all the other points which we usually take into consideration in inspecting the hospital. There is no definite plan of action. So the plan that I follow is more or less one of gradual development. It covers the following essential points: First, I inquire about the staff organization, staff meetings, staff minutes and type of programs. Next, I usually ask about the way in which the records, monthly summaries and analytic reports are kept, the plan of the hospital service, and then the type of histories which are written, especially whether the histories are properly endorsed. I inquire also as to whether the hospital has an autopsy room or not, and look into the autopsy records to find out whether the autopsy protocols are complete, and whether the autopsies have been done, or at least supervised, by the pathologist. I visit the laboratory and inquire into the type of records that are kept there, and inspect the roentgen-ray department. Of course, other things are essential for the running of a properly organized hospital, but we do not figure that we need to spend our time there to such a great extent. I have recommended to the secretary of the Council, and, through him, of course, to the Council on Medical Education and Hospitals, the approval of certain hospitals in which I myself would not want an internship. But it is very difficult to keep from approving some of them which apparently do reach a minimum standard.

DR. LOUIS B. WILSON, Rochester, Minn.: I think very few of us would care to have an internship in a hospital in which not 25 per cent of the fatal cases were posted. The report of the hospital group yesterday, before the Council, showed that 91 per cent of the hospitals now approved for internship are making 10 per cent or more of postmortem examinations. But we were unable to raise that to 15 per cent as a requirement. That is not because the hospital is at fault by any means, in all cases; it is because there are not enough pathologists to do the work. Yet these hospitals must have intern assistance, and interns must have hospital experience. I think it is one of the most perfect illustrations of the difference between theory and practice.

HOSPITAL STAFF CONFERENCE

Essentials in a Staff Conference Approved for Hospitals

DR. FRANK J. SLADEN, Detroit: The staff conference must be the cohesive factor, dominating the field of the department or hospital. Everything else must rotate about it or originate in it. It must be the main function of a staff as an organized whole, either departmental or institutional. In it should be found the source of the efficiency and idealism in professional, cultural, moral and economic principles which are fundamental today in both institutional and community life. (This paper will be published in full in THE JOURNAL.)

Autopsies and the Hospital Staff Conference

DR. BERNHARD STEINBERG, Toledo, Ohio: The conference should be limited to one hour. Weekly conferences are pref-

erable. Three or four days prior to the conference a card announcing the clinical diagnosis should be mailed to the physicians, and mimeographed copies of the clinical diagnosis, clinical summary and laboratory observations should be left in the office of the hospital for distribution. The conferences should be presided over not by the pathologist but by a clinician whose medical or surgical skill and achievements are recognized by his colleagues. The clinical chairman should be familiar with the pathologic observations so as to enable him to prepare and to present his contribution concisely and within the shortest possible time. The pathologic diagnoses are not divulged until the end of the discussion of the clinical history. This serves to hold and stimulate interest and results in a more free and general discussion. It is advisable before the conference to ask two or three physicians to start the discussion which should include a consideration of differential diagnosis, questions of therapeutics and criticisms of diagnosis and management.

From twenty to thirty minutes should be allotted to the clinical presentation and discussion, and twenty minutes to the pathologist, who follows at the end of the clinical discussion. When the pathologist begins the demonstration of the morbid anatomy, mimeographed sheets containing the pathologic diagnosis and the summary of the pathologic observations are distributed. The clinical and the pathologic sheets may be kept as a record of the case by the attending physicians. Gross organs pertinent to the condition are shown and the gross morbid anatomy is explained by the pathologist. Lantern slides of essential microscopic changes are flashed on the screen, and the pathologist correlates symptom and morbid change whenever possible. Then he presents a brief and concise summary of the known or the latest scientific facts regarding the subject under discussion. The ten remaining minutes are consumed by a general discussion and a general summary by the presiding clinician. Any hospital of 100 beds can muster material for weekly conferences. Occasionally a conference could be held on a specific topic, such as splenomegalies. Once or twice during the year a conference or two should be devoted to a statistical study.

Autopsies and the Hospital Staff Conference

DR. JEFFERSON H. CLARK, Philadelphia: By an interchange of ideas, questions and suggestions, preferably at the autopsy table, many doubtful points regarding diagnosis or treatment may be cleared up. Much of the success in procuring postmortem examinations rests with the resident personnel of the hospital, but the attending physician must also do his share. The chiefs of all departments must exhibit an earnest desire to rectify possible mistakes in diagnosis or treatment, and encourage and stimulate their residents in this respect, instilling into them a pride in the percentage of autopsy permits obtained. But the man who has the most influence with the person or persons in a position to grant permission for the necropsy is the family or referring physician. After consent has been gained for an autopsy, the pathologist should, if possible, perform the postmortem examination at a time convenient for the interested physicians to attend, and, in this way, further stimulate their interest in postmortem examinations.

The second essential for the medical checkup and postgraduate instruction is the hospital staff conference. Whatever the general scheme of staff conference, it should not omit a clinical pathologic conference. These conferences, as usually conducted, consist of a brief summary of the case history, which develops, if necessary, the reasons for certain diagnoses. The pathologist then gives a brief summary of the necropsy observations, with the anatomic and pathologic diagnosis, dilating on the interesting or important points when necessary. The clinician may then make remarks on the case, viewed in retrospect, and ask the pathologist questions relative to certain postmortem observations. But the pathologist has never asked the clinician questions pertaining to the diagnosis or treatment of the case in any clinical pathologic conference I have attended. And yet it seems to me that he is in a peculiarly favorable position for doing so—first, because he knows at least the summary of the case before the necropsy is performed, and can mentally and visually compare the clinical diagnosis with the pathologic observations; and secondly, because he is usually quite familiar with physiologic functions, normal or pathologic, with the tests used for their estimation, and with their interpretation. Clinical pathologic conferences conducted in this manner are extremely valuable for student teaching, because of the logical development of diagnosis and treatment.

At the Samaritan Hospital the pathologist was delegated to review all deaths of the previous month, and empowered to call on such men of the staff as seemed, in his judgment, best fitted to discuss them. Further, he was empowered, and I use the word advisedly, to ask candidly pertinent questions about diagnosis, study and treatment which occurred to him in reviewing the cases. In reviewing all hospital deaths, certain cases stood out of extreme interest to the pathologist which did not always come to autopsy; some, operative, in which the result of the tissue examination or the general condition of the patient, for example, did not seem to warrant the operative procedure, or others in which the final result came as a shock when contrasted with the apparent condition of the patient on admission. Such charts, then, were selected for secondary discussion; the brief abstract was read, and the physician in charge of the case was called on for comment. Not infrequently, these comments were called forth by questions from the pathologist, raised by certain notations in the history, not borne out by laboratory observations, or vice versa—questions pertinent to the cases which gave the physicians something to start on, or which made them defend their action or diagnosis. The object desired was to evoke free discussion of all possible points raised and give every man a chance to explain or defend his action, or to state his reason for certain procedures. In the beginning, particularly, some men took umbrage at certain of the questions asked, viewing them in a purely personal light as casting reflections on their professional ability. Later, it was appreciated that the questions were prompted by notations on the charts which may have been hurriedly written. Possibly notes relative to changes in physical signs may not have been added, because of carelessness or haste, which might have an important bearing on the case. Eventually, the staff realized the impersonal quality of the questions and their value for teaching purposes in accurately recording bedside observations.

In reviewing all hospital deaths in this way, we found that the biggest disadvantage was that the amount of material for discussion could not be completed in the allotted time, except in a hurried and cursory manner. Now we review all deaths, bearing in mind the mortality of certain conditions, questionable diagnoses, autopsy percentage and other points mentioned. The program committee selects two or three deaths with autopsies of especial interest for the clinical pathologic conference before the staff. This constitutes the first part of the scientific program. The second part comprises brief clinical reports of current hospital cases of about ten minutes' presentation time. In arranging the program, the committee has been able to select material from the hospital deaths and clinical case reports emanating from different departments, so that the meetings are not one sided, and something of interest to all specialties develops in the discussion at the hospital staff conference. The general opinion seems to prevail that staff conferences conducted in this modified manner offer a wonderful opportunity to learn from both the living and the dead while the main facts of the case or autopsy under discussion are still fresh in the memory.

The Staging of a Clinical Pathologic Conference

DR. H. E. ROBERTSON, Rochester, Minn.: Cases must be carefully chosen with a view to the needs and desires of the group before which they will be presented. Routine review of all possible cases is usually unwise. Not a single selection should be made unless that selection carries with it a justification of inherent value. Again, too many cases may defeat the very objective which is in mind. It is a rare team that can get the underlying worth out of more than three good cases in an hour, and that only with the best possible management. Two is usually the practical limit, and these two well presented and finished short of the prescribed time will give more worthwhile mental pabulum than a dozen that, before they are finished, have worn out the long suffering conferees. There should always be an organizer and leader. Whether it is the combined team of clinician and pathologist, or either one of these, some one must plan beforehand, select cases, be sure that the "parts" are assigned and understood and finally

direct the production of the review. He should be one who will bring to such a task enough inborn equipment that he may not detract from, and may even add to, the total possible value of the session. The manner of presentation of the history is usually one of the drawbacks to a good conference. A too busy clinician muddling through a sheaf of hospital notes, trying blunderingly to extract the wheat from the chaff and often not knowing what is wheat and what is chaff, offers a picture that embarrasses and distresses both him and his audience. At least he should have prepared either for him or better, by him, a summary of the clinical data which will carry only those facts proved to be finally pertinent in establishing or disproving a given set of diagnoses. If the clinician may present a sorry spectacle as he vainly tries to thumb his way through a mass of clinical sheets, what shall be said of the pathologist who presents to the group a collection of specimens which are chiefly remarkable for what they do not show. Fresh, bloody, perhaps foully odorous or reeking with solution of formaldehyde, and leathery in consistency and appearance, they require strong stomachs and the enthusiasm of real devotees before any close examination is possible. Specimens in jars, while usually better prepared, are not much more useful.

Specimens can be inoffensively presented if due care is exercised beforehand. By careful dissection and the use of glass rods or markers, if necessary, the lesion can be exposed directly to view. Then, if the specimen is placed in Kaiserling solution or any of its numerous modifications, the natural colors are fairly well preserved. When the day of their presentation arrives, the specimens are taken out of the fluid, carefully wiped dry of excess fluid and painted, by means of a brush, with a 15 per cent melted solution of gelatin. They may then be placed on a tray for close examination, without giving rise to offensive odors, and approaching their natural appearance. The gelatin not only gives them a glistening sheen and prevents drying, but renders it possible to handle them freely without soiling of the fingers. Appropriate labels attached to the tray give the necessary identification and pathologic diagnosis. A still further elaboration of this feature consists of lantern slides made from photographs of significant lesions and exhibited at the time the case is being presented. Microscopic sections constitute a very important portion of the pathologic demonstration. The discussion always should be brief and pointed and eventually should answer as fully as possible the following questions: 1. Was there any mistake in diagnosis, clinical or pathologic? 2. Was there any mistake in treatment? 3. What important conclusion can be made from the present study? Perhaps a referee could be appointed who, from a neutral point of view, might sum up the essential features of the case. All personalities must be meticulously avoided and hence the need of frankness from every one.

DISCUSSION ON PAPERS OF DRS. SLADEN, STEINBERG, CLARK AND ROBERTSON

DR. ROBERT A. LAMBERT, New York: It is just a little bit discouraging, I think, that we should still have to discuss the value of autopsies and of the presentation of observations at a pathologic conference, but the fact that autopsies are still comparatively rare in the hospitals of the United States, with the exception of teaching institutions, is sufficient warrant for all the discussion we have had this afternoon. As a pathologist, I have participated in conferences at Columbia University, at Yale, and, in the last five years, in two medical centers in South American countries. My first impression, my first comment, on the basis of my experience, was that the clinical pathologic conference was not quite as formidable as one might have gathered from some of the discussion. At least it seems to me that sometimes the simple form of conference, such as is sufficient in the smaller group with which I have been more intimately concerned, is more effective. Some of the difficulties that have been emphasized I have not been so much impressed with. I do not think that in the last few years the idea of offending clinicians has occurred to me. It is an important point, but I believe that sometimes we can be too conscious of it. To refer to my most recent experience, which has been in Porto Rico, I began doing autopsies in a country where I was told by politicians that autopsies, except on unclaimed bodies, were not the common practice. I was told that autopsies, except on unclaimed bodies and in medicolegal cases, could not be done. In my first year we obtained 60 per cent of permissions for autopsies in the hospital with which I was associated, and we did a number of autopsies outside of the hospital. I want to emphasize particularly the value of the autopsy for postgraduate teaching. From recent experience I learned that while various courses and clinics were open to the physicians of the district, it was the clinical pathologic conference that interested them most.

DR. PRESTON M. HICKEY, Ann Arbor, Mich.: I heard none of the authors say anything about introducing the roentgenologist into the pathologic clinical conference. I think that it is wrong for clinicians to attempt to explain the roentgenograms which have been made in the course of a case. The roentgenologist should be asked to discuss the case from the roentgenologic standpoint. That is also of great value to him, because often his interpretation has not been accurate, and he should be given the chance to check up on his observations.

DR. WILLIAM A. O'BRIEN, Minneapolis: The only way to get an autopsy is to ask for it, and a man who does not get any does not ask for them, because some people will say yes as soon as it is requested. Dr. Robertson pointed out that it is very important to stage the clinical pathologic conference well in order to retain interest. I think the same remark could be made about the autopsy itself. The autopsy should not be conducted in such a way that the audience gets tired and leaves before the examination is over. If the pathologist modifies his technic so that the interesting part of the examination can be presented early in the case and then does his more detailed laboratory work afterward, the audience will appreciate it and will come in large numbers. In order to get the students interested, we have devised a campaign of education by the telephone. Every time we schedule an autopsy, the telephone operator at the hospital rings every available point, not only in the medical school and the hospital but in all the fraternity houses. We have increased our attendance at autopsies a great deal. In regard to the presentation of material, perhaps the reason the students or interns develop such bad habits is that they imitate the staff. We have found that the best way to break them of the habit is to put them before the most critical audience in the world—their fellow interns.

DR. FREDERICK C. SMITH, Marion, Ohio: It is the easiest thing in the world to get autopsies if one will ask for them. We perform autopsies in a small town of about 35,000 people in about 90 per cent of the deaths.

DR. N. P. COLWELL, Chicago: The more I learn about hospitals, the more I feel that the hospital staff conference is one of the most important things in the hospital. It really is as important in the hospital to have a staff conference as it is for a business organization to have a survey once in a while if the workers are to know what is going on. The staff conference is a meeting at which the staff gets together and confers on what is being done. Is there any kind of report from the pathologist to show the extent to which he finds normal tissues being removed by surgeons or others in the hospital? My first contact with pathologic conferences was in medical schools. I went around inspecting medical schools and I began to find what tremendous interest there was on the part of the students in pathologic conferences. Now as I go into the hospitals I find that staff conferences are proving to be very interesting extension schools for the training of staff members.

Hypertrophic Arthritis of Spine.—In this disturbance the intervertebral foramina is the site of chief interest. Oppenheim in his text states: "As the intervertebral foraminae become narrowed by the formation of new bone, the roots are exposed to a very slowly increasing degree of pressure." He also speaks of ossification of the associated ligaments. This leads to shooting pains, which may be intercostal, brachial, crural (and I may add cervical); also to atrophic paralyses in the muscles of the extremities. The atrophic paralyses are almost never complete.—Wagenhals, F. C.: Neurological Disturbances Associated with Hypertrophic Arthritis of the Spine, *Ohio State M. J.*, January, 1929.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ARKANSAS

State Medical Meeting at Hot Springs, May 7-9.—The Arkansas Medical Society will hold its fifty-fourth annual session at Hot Springs National Park, May 7-9, under the presidency of Dr. Robert H. T. Mann, of Texarkana, and with the Garland County-Hot Springs Medical Society as host. Following the house of delegates meeting, Tuesday morning, a clinical session will be conducted by Drs. Isaac A. Abt, Chicago, on "Cerebrospinal Syphilis in Childhood"; Ray M. Balyeat, Oklahoma City, on "Seasonal Hay-Fever"; Grandison D. Royston, St. Louis, on "Modern Methods in Obstetrics"; Clarence M. Grigsby, Dallas, Texas, on "Hypothyroidism and Related Disorders," and Alexius M. Forster, Colorado Springs, on "Heliotherapy in Treatment of Tuberculosis," with moving pictures. The general session, Tuesday evening, will be addressed by the president, and by Drs. Robert M. Schauffler, Kansas City, and Preston Hunt, Texarkana, on "Arthritis" and "Medical Economics," respectively. Dr. Vilray P. Blair, St. Louis, will address the scientific sessions on "Instances of Various Types of Facial Repair," and Dr. Clinton K. Smith, Kansas City, "Problem of Pyelitis in Children." The house of delegates will select four members to fill vacancies on the state board of medical examiners. The Dewell Gann loving cup will be awarded the winner of the annual golf tournament played at the Hot Springs Country Club. There will be scientific and commercial exhibits. Mrs. Allen H. Bunce, Atlanta, president of the national women's auxiliary, will address the annual auxiliary meeting, Wednesday afternoon.

CALIFORNIA

Bill Enacted.—Senate bill 105, authorizing the Board of Pharmacy to issue a permit to general dealers in rural communities in which there are no registered pharmacists to sell simple household remedies and drugs, has become a law.

Hippelates Pujio and Eye Disease.—Congress has appropriated $12,000 to permit experts from the U. S. Bureau of Entomology to go to California to assist in the destruction of the gnat *(Hippelates pujio)* which is responsible for diseases of the eyes of many children in the Coachella Valley. This gnat has multiplied to an alarming extent. It hovers in swarms about the faces of persons and stock. Neither its breeding places nor its origin have been discovered.

Health at San Diego.—Telegraphic reports to the U. S. Department of Commerce from sixty-four cities with a total population of about 29 million, for the week ending April 13, indicate that the highest mortality rate (24.0) was for San Diego, and that the mortality rate for the group of cities as a whole was 13.5. The mortality rate for San Diego for the corresponding week last year was 22.3, and for the group of cities, 14.6. The annual rate for sixty-three cities for the first fifteen weeks of this year was 15.9, as against a rate of 14.1 for the corresponding period of last year. Caution should be used in the interpretation of weekly figures as they fluctuate widely. The fact that some cities are hospital centers for large areas outside the city limits or that they have a large negro population may tend to increase the death rate.

Bills Passed.—The following bills have been passed by the senate: Senate bill 33, providing for the registration of all marriages, births and deaths and for a central bureau for the preservation of such records; senate bill 214, amending the medical practice act by providing that an applicant for a physician's and surgeon's certificate must hereafter, in addition to the present requirements, show that he has completed not less than one year's training in a hospital approved by the board or has had other equivalent experience; senate bill 618, making it unlawful to sell or furnish any barbital (diethylbarbituric acid) or veronal, except on the prescription of a physician, and senate bill 815, making an annual appropriation of $25,000 to provide for the promotion of maternal hygiene under the state department of public health. House bill 523, providing for the establishment of a state hospital for the insane in southern California. The following bills have been passed by the house and the senate: Senate bill 30, requiring all drug stores to be registered with the California State Board of Pharmacy; senate bill 410, creating the office of chief of narcotic law enforcement, who shall have charge of the enforcement of all laws regulating the sale and distribution of narcotics and other dangerous drugs.

COLORADO

Graduate Course in Neuropsychiatry.—The University of Colorado School of Medicine, Denver, will give a course in neuropsychiatry for graduate physicians during July, embracing clinical psychiatry, the psychopathology of childhood, mental hygiene, clinics, lectures, and ward and outpatient work. The instructors will be from the staff of the Colorado Psychopathic Hospital, and heads of other departments of the medical school. The fee is $100. Address inquiries to the director of the hospital, 4200 East Ninth Avenue, Denver.

CONNECTICUT

Bill Introduced.—House bill 802 provides that the word "physician" shall be construed to include any person licensed by the state of Connecticut to practice any of the healing arts.

Bill Passed.—The following bill has been passed by the house and the senate: Senate bill 459, providing that all actions against physicians, surgeons, dentists, hospitals and sanatoriums for malpractice, error, mistake or failure to cure, whether based on contract or tort, must be brought within one year from the date of the injury or the neglect complained of.

Bills Enacted.—The following bills have become laws: Senate bill 144, amending the law concerning coroners by providing that whenever a deceased person shall be unidentified, the medical examiner or the coroner shall order the hands to be finger-printed and a photograph to be made of the body, such fingerprints and photograph to be filed with the registrar of the town, the state department of health, and the state department of police; senate bill 147, providing for the reporting to the state department of health by physicians of certain occupational diseases and making such reports admissible in court, and senate bill 246, providing for the issuance of burial permits by registrars, for the appointment of subregistrars, and for their registration with the state department of health.

DISTRICT OF COLUMBIA

Personal.—Dr. Joel T. Boone, lieutenant commander, U. S. Navy Medical Corps, has been appointed personal physician to President Hoover, succeeding Dr. James F. Coupal of the U. S. Army Medical Corps, who was physician to President Coolidge. ——Dr. Sterling B. Ragsdale, Geneva, N. Y., has been appointed superintendent of the Columbia Hospital for Women, Washington, to succeed Dr. Warren P. Morrill, who goes to Portland to become superintendent of the Maine General Hospital. Dr. Ragsdale has had several years' experience as superintendent of hospitals in New York and Connecticut.——Dr. William A. White was elected president of the reorganized Society for Mental Hygiene of the District of Columbia.——Dr. Ray Lyman Wilbur, secretary of the interior, addressed the general session of the eighth convention of the American National Red Cross in Washington, April 22.

Dr. Foote Appointed Dean at Georgetown.—Dr. John Foote of Washington, for about twenty-two years a member of the faculty of Georgetown University School of Medicine, has been appointed dean of the medical school to succeed Dr. George M. Kober, who has been made dean emeritus and a member of the board of regents. Dr. Foote is a graduate of Georgetown, where he has been professor of diseases of children for many years. He is a trustee of the National Geographic Society and a member of the geographic societies of London and Paris, as well as of various medical societies in this country and abroad, and is on the staff of the Children's Hospital, Providence Hospital and the Foundling Hospital. He takes up the administration of the medical school at the beginning of a period of expansion. The completion of the new one million dollar building next fall on Reservoir Road will permit an increase in the size of the student body, and additions to the curriculum.

Some "Higher Educational Institutions."—The number of institutions of "higher education" incorporated in the District last year notably decreased, possibly because of legislation pending to control them. Among the schools recently incorporated, according to the Washington *Star*, are the following:

Academy of Astro-Pathologic Research, incorporated to teach and demonstrate the pathogenic influence of stellar rays on human beings in relation to bodily and mental ailments and physical deficiencies; to hold lectures and conduct clinics for demonstration purposes. It reserves the right to "forever perpetuate the scholastic attainments of those whom it may consider proper by a degree of bachelor, doctor or master of arts, science, philosophy or astro science." This academy will operate at 143 Roseville Avenue, Newark, N. J.; the dean is said to be John Hazellrigg.

Golden Gate Naturopathic College, recently incorporated in the District to teach "any of the branches of the arts, letters and science that are or may be in vogue, at this or any future time, which it may desire to impart to students, wherever dispersed, in this or any foreign country." It may "open branch schools and institutes, conduct one or more hospitals, sanatoriums, clinics and rest homes under any system, or upon any subject that may be in vogue at this or any future time." This "college," which will operate from Pasadena, Calif., was incorporated by Walter R. Amlin, D.C., and Edna W. Van Curren.

The Home Therapy School was incorporated to operate at 1537 Monroe Street under the tutelage of Joe S. Riley, long known in Washington as a teacher of chiropractic. Riley, it appears at this time, is not to conduct a school of drugless therapy, but will teach "what to do before the physician arrives. nature's method of maintaining and restoring health, and first aid in illness and accident."

The College of Original Chiropractic and the College of Anatomical Sciences and Long's College of Cosmic Law, all operated from 1415 Milwaukee Avenue, Chicago, were recently incorporated in the District; the reports in the office of the recorder of deeds in Washington were signed by Sol. L. Long, Lillian R. Vosburgh and Grover S. Vosburgh.

The Union College of Physio-Therapy, 42 Jefferson Road, Ashtabula, Ohio, the National Academy of Naturopathy, 803 Curtis Street, Tampa, Fla., the International College of Radio Therapeutics, 85 Sherbrooke Street west, Montreal, the president of which is J. J. Healy, and the Standard School of Chiropractic, 85 Fifth Avenue, New York, are others which the *Star* noted in its search of the records in the office of the recorder of deeds.

ILLINOIS

Bill Introduced. — Senate bill 398 requires physicians to report gunshot wounds coming to their attention to the police authorities.

Agreement with Typhoid Carriers. — The state department of health reports that last year ten typhoid carriers were located in Illinois, and each one was required to sign an agreement prohibiting him from engaging in any occupation that would bring him into personal contact with food supplies meant for the consumption of others or with dishes and utensils used for serving foods. There are eighty-seven typhoid carriers in Illinois now under contract, of whom forty-three are in Chicago. Five of them were employed in the dairy business before detection and one was a cook.

Chicago

Hundreds Attend Hearing on Antivivisection Bill.—About 400 people attended a hearing in the city council chamber, April 19, on the antivivisection bill (senate bill 221) which has been introduced in the legislature. The committee of the legislature which conducted the hearing later visited local medical schools to witness how laboratory animals are cared for. The antivivisectionists, who charged that gross cruelty is perpetrated on animals in the name of science, were represented on the floor by John P. Snigg, an attorney of Springfield, who is said to have admitted that he had never been in a medical laboratory; John Sturgis Codman, Boston, vice president, New England Antivivisection Society, and William Held, M.D. (see page 1469). Among those who spoke in opposition to the bill were Dr. Frank Billings, for many years dean of the faculty of Rush Medical College and formerly president of the American Medical Association; Dr. John R. Neal, chairman, legislative committee, Illinois State Medical Society; Walter Dill Scott, LL.D., president of Northwestern University; Robert M. Kelly, president of Loyola University; Vice President Haynes of the University of Chicago; Prof. Robert Graham, D.V.M., Dean Emeritus Davenport and Dean Mumford of the University of Illinois; Drs. Lena Sadler, representing local women's clubs, Arnold H. Kegel, city health commissioner, Anton J. Carlson, professor of physiology, University of Chicago, and Dr. Moulton of the Meat Packers Institute, who opposed the bill from an industrial point of view. Each side was given an hour to present its case. The president of the Illinois Anti-Vivisection Society later conceded failure on their part to prove their charges. They have asked senators that the present bill be withdrawn and that another be submitted in which only dogs be exempted from the practice.

Society News—"Work of Chicago Investigators."—The annual meeting at which the work of Chicago investigators is presented before the Institute of Medicine was held, April 26, at the City Club. Among others, Alfred Kohler, University of Chicago, presented clinical studies on suprarenal therapy; J. C. Hinsey, Northwestern University, rôle of the hypothalamus and mesencephalon in locomotion; C. I. Reed, University of Illinois, interrelation of calcium, phosphorus and sugar in parathyroidectomized dogs, and Arthur Locke, St. Luke's Hospital, the respiratory substances of the bacteria.——Dr. Henry H. Kessler, medical director, New Jersey state rehabilitation commission, will address a meeting of the Chicago Society of Industrial Medicine and Surgery and the Chicago Medical Society, May 1, on "Factors in Determination of End-Results and Permanent Disability."——Among others, Drs. Arthur Weil addressed the Chicago Neurological Society, April 18, on "Study of Quantitative Distribution of Pyramidal Tract in Man" and Harold A. Davenport on "Chemistry of Muscles in Tetanus Contracture."——Dr. William F. Braasch, Rochester, Minn., addressed the Chicago Urological Society, April 25, on "Diagnosis and Treatment of Renal Tuberculosis."——Drs. James P. Simonds and Walter W. Brandes addressed the Chicago Society of Internal Medicine, April 22, on "Study of Loss of Weight in Experimental Thyrotoxicosis."——Prof. Ivan P. Pavlov's film on "Mechanics of the Brain" was presented, April 18, at the Medical and Dental Arts Building, by the American Society for Cultural Relations with Russia; Dr. Anton J. Carlson of the University of Chicago was the lecturer.——At the meeting of the Chicago Dermatological Society, in March, Dr. Harry R. Foerster, Milwaukee, was elected president, and Dr. Edward A. Oliver, secretary.

Report of Municipal Tuberculosis Sanitarium of Chicago.—For 1928 the peak for patients under supervision of the Municipal Tuberculosis Sanitarium, 45,905 was reached, with 255,969 patient visits to the eight dispensaries and 359,287 nurses' home visits. The dispensary dental division rendered service to 83,776 patients, all but 806 of whom were children. These patients could not afford the services of a private dentist. The dispensary roentgen-ray division increased its work more than 100 per cent in 1928, when 7,470 roentgenograms were made. Sixty-one open-window rooms in the public schools are now under supervision. The death rate per hundred thousand has reached the lowest point ever reached for the white population; namely, 60.6. Because of the marked migration of negroes in the last six years, resulting from industrial necessity, the negro death rate has increased to 447 per hundred thousand, representing 778 deaths for a population estimated at 173,889. The Mexican population, also of recent migration, has contributed eighty-one deaths in 1928. To combat this serious situation, a special lecture and practical course in tuberculosis was given to a group of more than fifty negro physicians. This was followed by an intensive house to house survey, to find individuals with tuberculosis who have never been under supervision. Ten thousand dodgers were printed and distributed by negro boy scouts during negro health week, asking that all persons have a complete physical examination by their private physicians during the month of April. Other activities in the field are special studies on 500 children who have been "contacts" to tuberculosis cases; a special study and survey of all patients with tuberculous meningitis dying in Chicago during 1928; a study of all known contacts to all known active tuberculosis cases in the entire city; a survey of the Mexican situation involving a detailed examination of 1,200 Mexicans, and a survey and detailed examination of 1,000 high school girls to determine the incidence of various defects. At the Municipal Tuberculosis Sanitarium, approximately 300 senior medical students of the class A medical schools have received a resident clerkship, in addition to special clinics and lectures. Two resident fellows are about to complete their first year, one in medicine and one in chest surgery.

IOWA

Bills Passed.—The following bills have been passed by the house and the senate: House bill 243, creating a state board of eugenics to determine the necessity for sexual sterilization of feebleminded, insane or syphilitic persons, habitual criminals, moral degenerates and sexual perverts, whether confined in state institutions or at large; house bill 346, permitting the state department of health to accept financial aid from the government of the United States for public health work in the state. The senate has passed senate bill 391, permitting the board of supervisors of any county to contract with any reputable physician to furnish medical attention to the indigent poor in any city or township.

State Medical Meeting at Des Moines, May 8-10.—The seventy-eighth annual meeting of the Iowa State Medical Society will be held at Des Moines, May 8-10, under the presidency of Dr. Thomas U. McManus, Waterloo. The scientific program comprises a series of symposiums on kidney infections in childhood, lesions of the upper abdomen, and amblyopia; many papers by Iowa physicians; a paper by Dr. Theodore S. Blakesley, Kansas City, on "Diathermy and Light Therapy in Eye, Ear, Nose and Throat Work"; an address at the Thursday evening session, by Dr. Hugh Cabot, dean and professor of surgery, University of Michigan Medical School, Ann Arbor, on "Choice of Anesthetics in Major Surgery, with Particular Relation to Protection of the Patient," and an address, Wednesday afternoon, by Dr. Joseph Brennemann, Chicago, on "Observations

on Treatment of Empyema in Children." Headquarters will be at Hotel Fort Des Moines, where all of the meetings will be held. The house of delegates meets in the forenoon of each day. Wednesday evening will be devoted to social entertainment, and Thursday morning to hospital clinics. Mr. A. B. Funk will conduct an open forum on "Workmen's Compensation," and Dr. Estella G. Norman, Battle Creek, Mich., will address the annual meeting of the Iowa Medical Women, Tuesday afternoon, on "Color Hygiene."

KANSAS

State Medical Meeting at Salina, May 7-9.—The Kansas Medical Society will hold its seventy-first annual meeting at Salina, May 7-9, under the presidency of Dr. Louis F. Barney, Kansas City. The guests of honor will be Drs. Granville S. Hanes, clinical professor of proctology, University of Louisville School of Medicine; Logan Clendening of the University of Kansas School of Medicine; Philip H. Kreuscher of Loyola University School of Medicine, Chicago, whose subject will be fractures, and Charles H. Neilson of St. Louis University School of Medicine, whose subject will be headaches. The instructive moving picture, "The Canti Cancer Film," which has been shown a few times in this country, will be exhibited. Among the subjects to be presented by Kansas physicians will be a symposium on maternity care; diagnosis of infantile paralysis; electrocardiography; ketogenic diet in chronic convulsive states, and treatment of lobar pneumonia. The luncheon to the secretaries will be the occasion of a joint meeting with the council on Tuesday. The banquet, Wednesday, will be followed by vaudeville, dancing and bridge. The annual golf tournament, however, will be played Monday, preceding the convening of the annual medical meeting, Tuesday. The country club will be open also to those who desire to play golf Thursday. The Kansas Medical Laboratory Association meets Wednesday morning. Medical fraternities will hold luncheons, and the women's auxiliary is scheduled to be addressed by the national president, Mrs. Allen H. Bunce of Atlanta.

LOUISIANA

State Medical Election.—At the fiftieth annual meeting of the Louisiana State Medical Society, New Orleans, April 11, Dr. Frank T. Gouaux, Lockport, was made president; Dr. Hermann B. Gessner, New Orleans, president-elect; Drs. Charles M. Horton, Franklin, Francis C. Bennett, Monroe, and Roy B. Harrison, New Orleans, vice presidents, and Dr. Paul T. Talbot, New Orleans, secretary-treasurer. This, the semicentennial, is said to have been the most successful meeting the society has had. The next annual meeting will be at Shreveport.

MARYLAND

Police Help Health Department.—The police department of Baltimore will aid the department of health in its campaign to eradicate diphtheria by distributing circulars in 150,000 homes showing the advantage of immunizing children by toxin-antitoxin. The health commissioner has addressed letters to practicing physicians and to the medical society requesting their cooperation in the drive to immunize children against diphtheria.

Society News.—At the organization of a local branch of the American Urological Association in Baltimore, April 5, Dr. Hugh H. Young was made president, and Dr. William A. Frontz, secretary.——The eleventh annual conference of health officers and boards of health will be held at the state department headquarters in Baltimore, May 10-11.——The courses for midwives in the counties of Maryland, given under the auspices of the state department of health, have been attended by about 226 women. The courses consist of eight lessons and demonstrations followed by an examination, and the papers of those desiring licenses are submitted to examining physicians in each county for decision. Many of the women are already licensed. ——The Maryland Psychiatric Society was addressed, April 10, at Towson, by Dr. Alexander R. Martin, on "Personality Change Following Thyroidectomy with Atypical Psychosis." ——A delegation of urologists from Washington, D. C., was entertained at dinner by the Baltimore City Medical Society, April 5, with a view to organizing a urologic association in Baltimore. Drs. Francis R. Hagner, Washington, D. C., addressed the society on "Sterility in the Male"; Lewellys F. Barker, Baltimore, on "Nature and Treatment of Cystopyelitis: Sequels of Typhoid and Paratyphoid Infections"; John A. C. Colston, "Treatment of Urinary Obstruction Due to Malignant Disease of the Prostate"; Albert E. Goldstein and Benjamin S. Abeshouse, "Prostatectomy Without Open Urinary Drainage," and Guy L. Hunner, elusive ulcer of the bladder.

MICHIGAN

Meningococci in an Unexposed Group.—The Detroit health department made a culture study on all household contacts of many cases of meningitis that occurred this year, the number of contacts investigated being 803, and found that 46.2 per cent of them gave positive cultures for the meningococcus. In contrast, a study was made also of an unexposed group and it was found that 6 per cent showed meningococci in the nasopharynx. While Detroit had 285 cases of meningitis this year up to April 13, the epidemic appears to have reached its peak, March 30, since which time it has been on the decline.

Personal.—Dr. Carl E. Badgley has resigned as assistant professor of surgery at the University of Michigan Medical School, Ann Arbor, to join the staff of the Henry Ford Hospital, Detroit.——Dr. William Westrate has been elected health officer of the city of Holland to succeed Dr. Daniel G. Cook, who is reported to have been taken to Leavenworth Prison, March 18, following his plea of guilty to violation of the Harrison Narcotic Law.——Helen S. Mitchell, Ph.D., of the nutrition laboratory of the Battle Creek Sanitarium will spend the summer studying the diet of natives in Laborador, working with Sir Wilfred Grenfell.——Dr. John P. Bland has been appointed health officer of Adrian to succeed Dr. Emily S. Stark.

Bills Introduced.—Senate bill 360 provides that no person shall hereafter be eligible to serve as coroner in Kent County, who is not a licensed physician at the time of the election. Senate bill 365 provides that on petition of not less than 10 per cent of the resident freeholders residing within the county, the board of supervisors may appoint a county poor physician, to hold office for one year. House bill 438 provides for the treatment of patients in hospitals supported by public revenue by practitioners of any school of healing. House bill 142 provides for the establishment, operation and control of county infirmaries by two or more counties. House bill 159 authorizes cities of over 100,000 to maintain municipal tuberculosis hospitals or sanatoriums, and would vest the management of such hospitals in the board of health of the city.

The Children's Fund of Michigan.—United States Senator James Couzens, Detroit, has created a $10,000,000 trust fund to promote the health, welfare, happiness and development of the children of Michigan and elsewhere in the world. The Children's Fund of Michigan, the corporation which will administer the fund, will be under the direction of Dr. Hugo A. Freund, Detroit, Senator Couzen's family physician. The trust instrument stipulates that the principal and income must be disbursed entirely inside of twenty-five years. In a statement, Dr. Freund is reported to have said:

> Mental hygiene and child guidance clinics will be encouraged; vocational and educational problems will receive attention; plans for properly surpervised group recreation will be assisted; dietetic hygiene, nutritional and other subjects bearing on the health of children will be investigated whenever and wherever the indication for the study arises. There are opportunities for more than adequate health programs for children, particularly in the rural districts. It is quite apparent that much sickness, suffering and retarded development result from the lack of proper care of the teeth of children, and we know that one of the first things he would like to see done is a movement in Michigan along these lines. The senator feels that children physically handicapped should receive early consideration from this fund. For the present no research in the pure sciences will be attempted. Nor will any edifice be erected to serve as a center for the many activities. This fund is for the purpose of assisting and developing those agencies and institutions that are already established, or creating new projects for the welfare of children and supplementing the work already begun in well established organizations. It may be definitely and emphatically stated that the foundation will not concern itself with individual relief nor with scholarships.

Senator Couzens heretofore has been a benefactor of the Children's Hospital of Michigan, Detroit. His total gifts to aid children are said now to amount to about $17,000,000.

MINNESOTA

Bills Introduced.—House bill 458 would authorize the board of regents of the University of Minnesota to erect and maintain, in connection with the medical department of the university, a suitable psychopathic hospital. House bill 969 would amend the medical practice act by providing that in the prosecution of any person for the violation of this act, it shall not be necessary to allege or prove want of a valid existing license to practice medicine as required by the act, but that all such matters shall be matters of defense to be established by the accused. House bill 1146 would make it unlawful to sell or serve food in any room where medical prescriptions are filled or drugs sold or dispensed. House bill 1172 would authorize counties having a population of 200,000, and an area of more than 6,000 square miles, to erect an auxiliary county hospital.

Bills Passed.—The house and the senate have passed senate bill 399, creating a board of barber examiners and regulating the practice of barbering. Senate bill 696, requiring all duly licensed practitioners of the healing art to report to the department to which communicable diseases are required to be reported any defect, injury or disease of a continuous nature or which might permanently handicap any child of preschool age, has been passed by the senate. House bill 604, amending that portion of the workmen's compensation act relating to occupational diseases by including as occupational diseases (1) poisoning by carbon monoxide acquired in the handling of motor vehicles and (2) dermatitis acquired in any process involving the use or mixture of paints, has been passed by the house. Senate bill 686, providing that applicants for nurses' licenses must have attended high school for at least one year, has been passed by the senate.

MISSISSIPPI

Society News.—Dr. Walter P. Gray, Waynesboro, addressed the South Mississippi Medical Society, Hattiesburg, March 14, on "Light Therapy as an Adjunct in Treatment of Carbuncle," and Dr. Edward W. A. Ochsner, New Orleans, on "Intra-Abdominal Postoperative Complications."——The North Mississippi Six County Medical Society was addressed at Oxford, April 17, by Drs. William J. Greenfield, Memphis, Tenn., on "Bronchoscopy and Esophagoscopy," and Dudley R. Moore, Byhalia, on influenza.——Drs. Hugh A. Gamble, Greenville, and Edward C. Mitchell, Memphis, addressed the Delta Medical Society at Drew, April 10, on complications following gallbladder surgery, and blood transfusion as a therapeutic measure in children, respectively.

State Medical Meeting at Gulfport, May 14-16.—The sixty-second annual meeting of the Mississippi State Medical Association will be at the Markham Hotel, Gulfport, May 14-16, under the presidency of Dr. William H. Frizell, Brookhaven. The state radiologic association will meet Monday evening, preceding the state medical meeting. The general meetings and the annual banquet, which will be followed by an informal dance, will be held on the roof garden. Dr. Edward W. Alton Ochsner, New Orleans, will give the annual oration on "The Physician and the Patient: Their Reciprocal Duties." This will follow the president's address at the public meeting, Tuesday evening. Other guest speakers include Drs. James B. Black, Murfreesboro, Tenn., on "Practical Child Health Program for a Rural Community"; Harry B. McCorkle, Colorado Springs, Colo., "Oxyperitoneum in Treatment of Tuberculous Peritonitis"; Claude F. Dixon, Rochester, Minn., "Medical and Surgical Aspects of Goiter," and William C. Rucker of the U. S. Public Health Service.

MISSOURI

Bill Passed.—The house has passed house bill 109, requiring coroners in counties over 300,000 and under 600,000 to report to the prosecuting attorney and the secretary of state all deaths caused by motor vehicles.

License of One of Four Revoked.—At an executive session, in April, the Missouri State Board of Health revoked the license of Dr. Louis C. Schneider, Kansas City, for illegally dealing in narcotics (THE JOURNAL, March 9, p. 816).

Society News.—Dr. John Mayhew, Lincoln, Neb., addressed the Jackson County Medical Society, Kansas City, April 16, on "Postpneumonic Myocarditis"; Drs. Paul F. Stookey and Benjamin Landis Elliott, on "Epidemic Meningitis," and Dr. Harry C. Berger on "Hydrocephalus."——Among others, Dr. Malvern B. Clopton addressed the St. Louis Medical Society, April 16, on "Indications and Results of Splenectomy in Childhood."——The Missouri State Medical Society now occupies larger quarters on the tenth floor of the Missouri Building, St. Louis.——Dr. Frederick Gregg Thompson, St. Joseph, addressed the Buchanan County Medical Society, April 17, on "Gastric and Duodenal Ulcer."

State Medical Meeting at Springfield, May 13-16.—The seventy-second annual meeting of the Missouri State Medical Association will be at Springfield, May 13-16. The scientific program comprises symposiums on obstetrics, diseases of the chest, fractures and neurology, and a clinic on chest diseases, Wednesday afternoon. The guests from other states and their subjects include Drs. Peter Bassoe, Chicago, "Our Present Knowledge of the Psychoneuroses with Special Reference to So-Called Neurasthenia"; Preston M. Hickey, Ann Arbor, Mich., "Pulmonary Neoplasm"; Harry C. Kleinschmidt of the National Tuberculosis Association, New York, "Tuberculosis in Childhood"; James S. Pritchard, Battle Creek, Mich., "Pain in Tuberculosis"; John H. J. Upham, Columbus, Ohio, "Fetal Liver Feeding in Aplastic Anemia," and Philip D. Wilson, Boston, "General Considerations of Treatment of Fractures." With two evenings devoted to discussions of scientific papers, it has been possible to place more than fifty on the program. All meetings will be in the roof garden at the Kentwood Arms Hotel. The committee on arrangements will see that a visit to the "Queen City of the Ozarks" is a pleasurable event.

NEBRASKA

Bill Passed.—House bill 527, creating a state anatomic board and providing through said board for the distribution and use of certain dead human bodies for educational purposes, has been passed by the house and the senate.

NEW HAMPSHIRE

Bill Passed.—House bill 386, providing for the sexual sterilization of certain inmates of state and county institutions, has been passed by the house and the senate.

NEW JERSEY

Bills Passed.—Senate bill 11, authorizing any counties, municipalities or school districts to enter into a joint contract for public health service, has been passed by the house and the senate. The senate has passed senate bill 294, amending the pharmacy act by providing a penalty for the violation of the act of not less than $25 or more than $50 for the first offense, not less than $50 nor more than $100 for the second offense, and not less than $100 for each subsequent offense.

NEW YORK

Fewer Alcoholic Insane.—The commissioner of mental hygiene, Dr. Frederick W. Parsons, in his annual report notes that the number of patients admitted to state hospitals last year with mental disease brought on by indulgence in alcohol was 509, a decrease of forty-five over the previous year. The number of male alcoholic addicts with mental disease admitted was 437 in 1917, and it gradually decreased to ninety in 1920. The number then rose steadily to 440 in 1927. The number of women was 157 in 1917; this gradually declined to thirty-two in 1920, and then gradually increased to 114 in 1927. The total number of mental patients under treatment at mental hospitals during the last fiscal year was 61,449, a net increase of 2,669. Of these, it is said that 85.5 per cent paid nothing to the state. The number of patients discharged benefited by treatment was 3,859. Dr. Parsons announced that the state hospital being constructed about 40 miles from New York in Suffolk County will be named the Pilgrim State Hospital in honor of Dr. Charles W. Pilgrim, who has retired from the state service.

Society News.—The Women's Medical Society of New York State will hold its twenty-third annual meeting in Utica, June 3, preceding the meeting of the state medical society.——Saturday evening health talks sponsored by the Erie County Medical Society over WGR, Buffalo, have been scheduled until September 14. The talk, April 27, was by Dr. Francis E. Fronczak on immunity. The gynecology section of the society was addressed, April 17, by Dr. Joseph E. F. Laibe, Chicago, on "Importance of Urinary Tract Examinations in Gynecology," and the section of pathology, April 24, by Dr. Lawrence Smith, on pertussis.——The Buffalo Academy of Medicine was addressed, April 3, by Dr. Harry L. Huber, Chicago, on "Clinical Manifestations of Allergy."——The Medical Society of the County of Albany was addressed, March 20, by Dr. J. P. Kane, formerly of Spokane, Wash., and now with the Gorgas Memorial Institute, Washington, D. C., on "The Doctor and the Periodic Health Examination," and by James Sullivan, LL.D., Albany, on "Workings of the Medical Practice Act."

Bills Enacted.—The following bills have become laws: House bill 77, making the sale of any beverage containing wood alcohol or other poisonous substance a felony, punishable by a minimum imprisonment of five years; house bill 186, amending the civil practice act by providing that an order to produce hospital records in court must be served at least five days before the day fixed for the production of such records in court; house bill 566, amending the health law by making it a felony to sell or distribute habit-forming drugs, and providing for imprisonment not to exceed ten years; house bill 595, amending the health law relative to the duties of health officer by eliminating the duty of examining school children; house bill 1325, amending the state charity law by dividing the cost equally between the state and the county for the care and treatment of children admitted to the New York State Orthopedic Hospital; house bill 1528, creating a board of examiners for dental technicians; house bill 1762, eliminating ambulances from the vehi-

cles defined as motor vehicles and providing that no registration fee shall be paid for a motor vehicle equipped to carry sick or injured persons. House bill 459, amending the poor law by providing that a tuberculous poor person shall not be deemed settled in any town in Greene County until he has lived there five years, has become a law.

New York City

Bequest to County Society.—For the second time in its 107 years of existence, the Medical Society of the County of Kings has been bequeathed funds in the will of one of its members. Dr. Thomas R. French who died, January 5, left the society twenty-five shares of stock worth about $5,000. He was a member for fifty-five years and formerly was the librarian. This is the largest bequest the society has received.

Society News.—A symposium on arthritis was presented before the Medical Society of the County of New York, April 22, by Drs. Reginald Burbank, James C. Small, Philadelphia; William S. Baer, Baltimore, and William Russell MacAusland, Boston. The discussants were Drs. William E. Preble, Boston, and Homer F. Swift, Russell L. Cecil and Leo Mayer.——The Baltimore Medical Club of New York will hold its annual dinner at the Hotel Commodore, Saturday evening, April 27; the guests will be Dr. Joseph Colt Bloodgood and Mr. H. C. Byrd, director of athletics, University of Maryland.——At a meeting of Hospital Center number 6, army building, 39 Whitehall Street, April 26, Dr. Frederick M. Dearborn spoke on "The Convalescent Camp: Its Relation to Other Units of the Hospital Center."

Health Department Takes the Blame.—The New York City Department of Health appreciates the cooperation and assistance being rendered by practicing physicians in the drive on diphtheria. It appears that more than 45 per cent of the children immunized so far during the present campaign have been immunized by private physicians. The excellent work by practitioners is largely due, the department says, to methods employed by the Diphtheria Prevention Commission, and the practical assistance rendered physicians in advising families as to the need of immunization. The department of health on previous occasions has repeatedly deplored the apparent indifference of physicians to preventive work, but the present experience has convinced them that the department must shoulder much of the blame for the failure to enlist the physicians' cooperation. In view of this encouragement the plans are being considered to inaugurate cooperative work along other lines.

OHIO

Bill Enacted.—House bill 145, authorizing every board of education in the state to appoint at least one school physician and one or more school dentists, dental hygienists and assistants, has become a law.

Bill Passed.—Senate bill 243, amending the workmen's compensation act by providing that the term "injury" as used in the act shall "include any injury received in the course of employment, or any disability caused by illness or disease arising out of or as the direct result of the employment," has been passed by the house and the senate.

PENNSYLVANIA

Bills Passed.—The following bills have passed the house and the senate: Senate bill 1335, authorizing towns to acquire land for the establishment and maintenance of municipal hospitals; house bill 1902, establishing a state narcotic farm for the confinement and treatment of persons addicted to the use of habit-forming narcotic drugs, and house bill 2011, amending the drug act by including marihuana among the substances deemed to be "drugs" within the meaning of the act.

Society News.—The Lycoming County Medical Society was addressed, April 12, at Williamsport by Drs. Mary Riggs Noble, Harrisburg, and Royal H. McCutcheon, medical director, state sanatorium at South Mountain, on early diagnosis of tuberculosis in children.——A symposium on tuberculosis was presented before the Fayette County Medical Society, Uniontown, April 4, by Drs. George H. Robinson, George H. Hess and Herman A. Heise.——The Allegheny County Medical Society, Pittsburgh, was addressed, April 13, by Drs. Harold A. Miller on "Obstetric Hazards"; William H. Guy, "Differential Diagnosis of Lesions of Oral Cavity"; Raleigh R. Huggins, "Responsibility of the Obstetrician and Gynecologist in Prevention of Disease," and Joseph H. Barach, "Differentiation of the Acute Colds."——A symposium on syphilis before the Pittsburgh Academy of Medicine, April 9, was presented by Drs. William H. Guy, Lewis C. Bixler and Harold L. Mitchell.——Dr. Clarence R. Phillips, Harrisburg, has been reelected president of the Dauphin County Tuberculosis Society for the tenth year.——The Lancaster City and County Medical Society was addressed in April by Dr. P. S. Stout, Philadelphia, on "Nose, Throat and Ear Complications Following the Influenza Epidemic."——Dr. Homer Morris has been appointed director of public relations for the Reading Hospital, Reading.——The Main Line Branch of the Montgomery County Medical Society was addressed, April 8, by Dr. Harold L. Amoss, Baltimore, on poliomyelitis.——Dr. Jerome B. Rogers has resigned as superintendent of the Pottsville Hospital.——Dr. James I. Johnston has been elected president of the Allegheny County Medical Society, Pittsburgh, for the ensuing year.——The Pittsburgh Academy of Medicine was addressed, April 23, by Drs. Henry T. Price on "History of Congenital Pyloric Stenosis in Pittsburgh"; Adolphus Koenig, Jr., on "Symptomatic Treatment of Gastro-Intestinal Dysfunction," and Evan W. Meredith on "Congenital Pyloric Stenosis."——The Cambria County Medical Society was addressed, April 11, by Dr. Lester Hollander, Pittsburgh, on "Diagnostic Criteria for Cancer of the Skin and Mucous Membranes and Their Treatment," and on March 14 by Drs. Samuel A. Savitz, Philadelphia, on "Choice of Drugs in Treatment of Heart Affections," and John A. McGlinn, Philadelphia, on advances in obstetrics and gynecology.

Philadelphia

Society News.—The dinner in honor of Dr. Morris Fishbein, Chicago, editor of THE JOURNAL, which was scheduled by the Philadelphia County Medical Society for April 23, has been postponed until May 22 on account of the death of Dr. Fishbein's son. Dr. Fishbein will speak on "Fads and Quackery in Medicine." The society was addressed, April 24, by Drs. Edward A. Schumann on treatment of toxemias of pregnancy and Brooke M. Anspach on treatment of abortions; Dr. David Riesman gave the Friday afternoon seminar at the society's headquarters, April 19, on modern treatment of the anemias.

Personal.—Dr. Michael M. Wolfe has been appointed dermatologist to the American Hospital for Diseases of the Stomach.——Dr. George E. Barnes, secretary, Pennsylvania Committee of Selection for the Rhodes Scholarship, was guest of honor at the Medical Club, April 19.——Dr. Addinell Hewson, who was given a testimonial dinner by the Anatomical League, April 11, on his completion of fifty years as a teacher of anatomy, is the founder and honorary president of the league.——Dr. Frank C. Hammond, dean, Temple University School of Medicine, was guest of honor at a dinner, March 7, given by the premedical society.——Dr. Robert Shoemaker, III, gave the address at the recent graduation of nurses at Lankenau Hospital.——Dr. Eugene L. Opie, director of the department of pathology, University of Pennsylvania, and of the laboratory of the Henry Phipps Institute, has been elected to the board of scientific directors of the Rockefeller Institute for Medical Research, New York.

RHODE ISLAND

Bills Passed.—The house has passed house bill 783, providing that licensed chiropractic physicians shall be entitled to the same services of the pathologic and chemical laboratories of the state board of health as are now available to other physicians, and house bill 912, requiring physicians to report gunshot wounds coming to their attention.

SOUTH CAROLINA

Society News.—The Spartanburg County Medical Society was addressed recently at the Spartanburg General Hospital, by Dr. Charles W. Bailey, on "A Pediatric Consideration of Acute Otitis Media in Infants," and by Dr. Freeman H. Sanders on "Digitalis Therapy"; and Dr. Edgar A. Hines, Seneca, secretary, South Carolina Medical Association, addressed the Anderson County Medical Society on undulant fever, and Dr. Richard M. Pollitzer, Greenville, on "Serum Sickness."——Dr. Robert S. Dinsmore, Jr., Cleveland, addressed the South Carolina Medical Association, Charleston, February 12, on diseases of the thyroid gland, illustrated with lantern slides.——At a reorganization of the Fifth District Medical Society at Chester, March 26, Dr. William E. Simpson of Rock Hill was made president. Following a number of scientific addresses and a luncheon, the society adjourned to meet in October at Rock Hill.

State Medical Meeting at Charleston, May 7-9.—The annual meeting of the South Carolina Medical Association will meet at Charleston, May 7-9, under the presidency of Dr. Rolfe

E. Hughes, Laurens. Clinics have been arranged for Tuesday afternoon and Thursday morning at the Roper Hospital, the county tuberculosis sanatorium, and at the Francis Marion Hotel. The guests will be Dr. Walter E. Dandy, Johns Hopkins Hospital, Baltimore, who will speak on "Early Diagnosis and Treatment of Brain Tumors"; Dr. Henry P. Wagener, Mayo Clinic, Rochester, Minn., "Significance of Retinitis in Hypertension," and Roe E. Remington, director of the laboratory of the South Carolina Food Research Commission, Charleston, on "Vegetable Food and the Goiter Problem." Many South Carolina physicians will take part in the program. The South Carolina Pediatric Society and the South Carolina Public Health Association will hold meetings, as will alumni associations, fraternities, and the women's auxiliary. There will be a trip to Fort Sumter, medical moving pictures, and scientific and commercial exhibits.

WISCONSIN

Bills Passed. — The senate has passed senate bill 285, amending the law relating to search warrants by providing for the issuance of a search warrant to search for and seize any opium or coca leaves, or any compounds, manufactures, salts, derivatives or preparations thereof. The house has passed house bill 328, providing that whenever necessary to gain needed vault space, the board of health may turn over to the superintendent of public property for destruction obsolete records in its possession, as follows: (*a*) of licensing departments, after five years; (*b*) orders of the board, after ten years; (*c*) original morbidity reports of physicians, after six years; (*d*) inspection reports, after five years. House bill 155, authorizing the state board of health to prescribe standards governing the general sanitation of tourist camps, summer camps and summer resorts, has been passed by the house.

GENERAL

Standardization of Medicine Cabinets.—A conference of users and manufacturers of steel bathroom and medicine cabinets was held in Washington, D. C., April 25, at the U. S. Department of Commerce, under the auspices of the Division of Simplified Practice, to consider a program of simplification in this industry. The manufacturers have been cooperating for some time in a constructive program for the elimination of unnecessary varieties of these commodities. The recommendation for simplification would limit the output to three sizes with mirrors, and with or without an open shelf.

Medical News.—The National Board of Medical Examiners announces that its new journal, the *Diplomate*, will be limited primarily to the publication of medical news. The monthly journal, which is a successor to the bulletin, will not be published in July and August. The *Diplomate* will contain news of medical colleges, fraternity and society activities, the attainments of distinguished students, interns and diplomates, and the activities of medical and premedical student organizations, fellowships, vacancies in positions and changes in medical practice acts. Each medical college has been asked to designate a student as news correspondent. The managing editor, Everett S. Elwood, 225 South Fifteenth Street, Philadelphia, will be assisted by a board representing organizations interested in medical education.

Society News.—At the annual meeting of the American College of Physicians, Boston, April 11, Dr. John H. Musser, New Orleans, was installed as president; Dr. Sydney R. Miller, Baltimore, president-elect; Drs. Aldred S. Warthin, Ann Arbor, Francis M. Pottenger, Monrovia, Calif., and Logan Clendening, Kansas City, Mo., vice presidents; Dr. George M. Piersol, Philadelphia, secretary, and Dr. Clement R. Jones, Pittsburgh, treasurer. The next annual meeting will be in Minneapolis. ——The American Chemical Society will hold its annual meeting at Columbus, Ohio, April 29-May 3; among others there will be a joint session of the division of medical chemistry and the division of biologic chemistry, which will be addressed by Paul N. Leech, director, laboratory of the American Medical Association, on trend of academic and commercial chemotherapeutics; Howard H. Beard and Victor C. Myers of Western Reserve University School of Medicine, Cleveland, on blood regeneration in nutritional anemia, and Frederick W. Heyl and Edwin C. Wise on tolerance of a subject with diabetes to dried artichokes.

Medical Bills in the New Congress.—S. 255, introduced by Senator Jones, Washington, provides for the promotion of the health and welfare of mothers and infants. H. R. 1195, introduced by Representative Cooper, Ohio, is the companion bill in the House. H. J. Res. 7, introduced by Representative La Guardia, New York, provides for a joint congressional committee to investigate the traffic in narcotics and existing laws relating thereto. H. J. Res. 17, introduced by Representative Porter, Pennsylvania, provides for the expenses of delegates of the United States to the Congress of Military Medicine and Pharmacy to be held in London, England, in 1929. H. R. 74, introduced by Representative Fitzgerald, Ohio, authorizes the admission to the National Home for Disabled Volunteer Soldiers, under the restrictions of existing law, of women commissioned or enlisted, and male and female Army and Navy nurses under commission, enlistment or contract, since April 21, 1898. H. R. 77, introduced by Representative Fitzgerald, Ohio, extends the benefits of the Federal Employees' Compensation Act to civilian members of the Reserve Officers' Training Corps, and officers and enlisted men of the National Guard, who are injured in line of duty at military training camps. H. R. 128, introduced by Representative La Guardia, New York, provides for "adequate compensation and treatment for veterans having a tuberculous disease," and that an ex-service man having an active tuberculous disease, who is entitled to hospitalization, may elect to take a maintenance allowance of $4.75 per diem in lieu of hospitalization. H. R. 158, introduced by Representative Linthicum, Maryland, provides for the retirement of acting assistant surgeons of the United States Navy on reaching the age of 64 years or for disability prior to that age. H. R. 169, introduced by Representative O'Connell, New York, provides that employees of the Postal Service suffering from tuberculosis, nervous diseases or kindred occupational ailments shall be given hospitalization, without cost to the employee, in government owned hospitals. H. R. 218, introduced by Representative Fulmer, South Carolina, authorizes an appropriation of $250,000 to enable the director of the Veterans' Bureau to provide hospital facilities at or near Columbia, S. C. H. R. 232, introduced by Representative Porter, Pennsylvania, increases the penalty for violation of the Harrison Narcotic Law from five years to eight years and provides that a person sentenced to any penitentiary, prison or reformatory institution for a violation of the law shall not be eligible to parole. H. R. 234, introduced by Representative Rogers, Massachusetts, authorizes an appropriation of $11,500,000 to provide additional hospital, domiciliary and outpatient dispensary facilities for persons entitled to hospitalization under the World War Veterans' Act. H. R. 717, introduced by Representative Glover, Arkansas, authorizes an appropriation of $1,500,000 to enlarge the Army and Navy General Hospital at Hot Springs National Park, Arkansas. H. R. 723, introduced by Representative Johnson, Indiana, provides that any person who served in the military or naval forces during the World War who is shown to have, within ten years after the date of his discharge or resignation from service, any disability not the result of his own wilful misconduct, shall be presumed to have acquired such disability as the result of, or to have suffered an aggravation of a pre-existing disability in such service, the presumption being rebuttable. H. R. 994, introduced by Representative Hogg, Indiana, amends the World War Veterans' Act so as to authorize the director to give credit to affidavits by persons informed of the pertinent facts, in lieu of medical evidence, when submitted in support of claims under the act. H. R. 1021, introduced by Representative Jeffers, Alabama, authorizes an appropriation of $1,500,000 for the erection of a United States veterans' hospital in the state of Alabama.

FOREIGN

Professor Yamagiwa Awarded Cancer Prize. — The Sophie A. Nordhoff-Jung Cancer Prize of $1,000, awarded biennially, has been awarded to Prof. Katsusaburo Yamagiwa of the University of Tokyo for his experimental work on the production of cancer in animals by means of tar and for other research on tumor cells. The commission of award comprised Professors von Romberg, Doderlein and Borst of Munich, and Sauerbruch of Berlin. The two previous awards of the prize were made to Fibiger of Copenhagen and to Otto Warburg of the Kaiser Wilhelm Institute of Berlin.

Expenditure for Medical Education.—Following a recent visit to medical centers in the United States and Canada, Sir Squire Sprigge, editor of the *Lancet*, has published his impressions as a supplement to the January 5 issue of the *Lancet*. Sir Squire did not formulate conclusions; his desire was to acquire information to appraise how far the standards of medical education in the United States and Canada approximate the standards in Great Britain. However, in concluding the report, he says that the advance of medicine and medical education, in America particularly, is accompanied by a riot in expenditure; "dollars seem to flow there as naturally for hospitals and laboratories as gold flowed in medieval Europe for

the great cathedrals; yet all this expenditure in a comparatively new civilization may not be well directed, and, indeed, may have the danger that accompanies too rapid growth. We have for our part too little money but greater experience and greater right to rely on precedent, yet for these very reasons we may be too reluctant to adopt measures that would bring about progress." The tour on which this report was based included visits to fourteen medical centers.

Society News.—The ninety-seventh annual meeting of the British Medical Association will be held at Manchester, July 24-26, under the presidency of Dr. Arthur H. Burgess, Manchester.——The German Society for Research in Circulation held its second convention at Bad Nauheim, March 4-5. The speakers were Professor Gruber of Göttingen, and Professor Nonnenbruch of Prague. About 150 attended. The chairman for the next convention, which will be held in Dresden, will be Prof. J. Rihl.——The Society for Diseases of Digestion and Metabolism will hold its ninth convention at Berlin, October 16-18, under the chairmanship of von Haberer. Further information will be given by Prof. von den Velden, Berlin, W. 30, Bamberger Strasse, 49.——The National Society for the Prevention of Tuberculosis will hold its fifteenth annual conference at Newcastle-upon-Tyne, England, October 10-12. The address of the association is 1 Gordon Square, London, W. C. 1.——The council of the Italian Society for the Study of Malaria, January 7, decided to postpone the convention on malaria which was set for February until the autumn.——At a meeting of the Osler Club in London, England, January 25, Dr. James Collier read a paper on "Development of Neurology in the Victorian Period."——The American ambassador to Germany, Jacob G. Schurman, Sc.D., recently presented to Heidelberg University a gift of more than $500,000 from friends in the United States. Dr. Schurman was for many years president of Cornell University, Ithaca, N. Y.; he studied at Heidelberg University fifty years ago.

Government Services

Graduate Courses of Veterans' Bureau

The first postgraduate course in medicine and surgery of the U. S. Veterans' Bureau Post Graduate Schools ended, January 31, when ten physicians completed the course at Palo Alto, Calif., and Washington, D. C. The second graduate course began February 1 and will extend over a period of four months; ten student physicians have been detailed to take the course.

Army Personals

Capt. Kincheon H. Bailey was relieved from duty at Fort Jay, New York, and assigned to Fort Hancock, New Jersey.——Major William H. Mitchell was assigned to duty at Vancouver Barracks, Wash., on completion of his present tour of service in the Hawaiian Department.——Major Henry B. McIntyre was relieved from duty at Jefferson Barracks, Mo., and assigned to duty with the Organized Reserves, eighty-seventh division, at New Orleans.——Capt. Henry S. Cole was relieved from duty at Fort Eustis, Virginia, and assigned to Jefferson Barracks, Mo.——The resignation of Capt. Charles A. McDowell was accepted by the President, effective January 16.——Major Luther R. Poust, Fort Sam Houston, was directed to sail from New York for the Philippine Islands for duty about February 16.——Lieut. Frank W. Messer has been assigned to duty at Fort Sill, Oklahoma, effective after temporary duty at the medical field service school, Carlisle Barracks, Pa.——Lieuts. Harold L. Stewart, Charles W. Williams and James E. Yarbrough, after temporary duty at Carlisle Barracks, Pa., and on completion of a course of instruction about May 31, will proceed to Walter Reed General Hospital, Washington, D. C., for duty; the following lieutenants on completion of a similar course about May 28 will sail from New York for duty at Letterman General Hospital, San Francisco: James P. Cooney, Harold W. Glattly, Neb L. Miller and Oliver K. Niess.——Col. Paul S. Halloran has been assigned to duty at Fitzsimons General Hospital, Denver, on completion of his tour of foreign service.——Lieut. Richard E. Humes will sail for the Hawaiian Department on or about May 28.——Capt. Edward D. Sykes is assigned to duty in the office of the surgeon general, Washington, D. C., effective on completion of his tour of foreign service.——Capt. Frank M. Moose has been assigned to duty at Madison Barracks, New York, and Capt. Howard M. Williamson to Walter Reed General Hospital.

Foreign Letters

LONDON

(From Our Regular Correspondent)

March 30, 1929.

The Central Council for Health Education

Health propaganda is the order of the day and it figures much in the press. Some of it is quite sound, but a good deal is of the nature of "stunts." The recognized leaders of the profession have determined that the time has arrived when the public should be instructed by those best qualified to do so and in a way that is above all suspicion of publicity seeking. A central council for health education has been formed with Prof. H. R. Kenwood (author of a well known textbook on public health) as chairman and several leading physicians and surgeons (Lord Dawson, Sir Humphry Rolleston, Sir Berkeley Moynihan, Sir E. F. Buzzard and Sir Thomas Horder) members. The council has made arrangements, which have been approved by the ministry of health and the general medical council, to issue, with the support of the press, a weekly signed article dealing with some subject of public health interest. Its activities have begun with the publication of an article on influenza by Dr. William G. Savage, county health officer, Somerset. The central council for health education has adopted the view that it can, quite apart from well established precedent, authorize physicians to write articles on medical subjects for the general press. The initiative for the formation of the central council came from the Society of Health Officers, which was struck by the multiplicity of organizations all clamoring to lecture to the public on various aspects of health and generally to do the work of the health officer. The council now hopes to reduce these multifarious activities to manageable proportions and, by general agreement, to give the stamp of authenticity to public statements on matters of health. Anything in the nature of "stunts" or fads will be avoided, and it is proposed to issue articles only under the names of senior medical men of recognized standing. The general medical council will play the part of approving on broad lines the names submitted to the ministry of health, subject to actual selection by Sir George Newman, chief medical officer of health. The interest of the ministry is further shown by its appointment of an observer, Dr. Kentish Wright, who will keep in close touch with the activities of the central council.

In the first of the series of articles the following advice with regard to influenza is given: To escape infection avoid crowds. Crowded trains and busses it may not be possible to avoid, but crowded places of entertainment and other meetings can be avoided when influenza is about. Well ventilated rooms and trains are much less likely to cause infection, as the currents of air carry away the germs and also help one to resist infection. Washing out the nose with a weak solution of salt and water or a very weak disinfectant, such as warm water with enough potassium permanganate to color it pink, is useful, and the same solution may be used also as a gargle. If one has influenza he has two duties—one to himself and one to others. Bed is the best place for the patient and essential if there is any fever. Also medical advice should be sought if the attack is at all severe. Persons do not die of influenza itself so much as from the complications thereof, and a good many of these are due to insufficient care during the illness and making light of the condition.

The Evils of Waste Gases from Power Stations

In a letter to the *Times* a chemist calls attention to a danger from the vast power stations for the supply of electricity springing up all over the country, and generally in the suburbs of our large cities. These stations are designed on a more or less

uniform plan, and with a view to effecting a maximum of fuel efficiency. From the standpoint of engineering they approach as closely to perfection as our present state of knowledge permits. However, while concentrating his attention on fuel efficiency, the engineer has neglected one aspect of the problem, the disposal of the sulphuric acid laden gases from his chimneys, and the chemist has not been consulted in the problem. In such power stations the fuel is burned so completely that the waste gases contain no smoke or trace of combustible matter, and only a small excess of oxygen. They pass from the boilers through apparatus by means of which the maximum quantity of heat is recovered from them for heating steam, water or air, and then to dust settling chambers through which they pass at a temperature favorable for the maximum conversion of the sulphur into sulphuric acid. Finally they leave the station through low chimney stacks of large diameter, at so low a temperature and velocity that they eddy round the tops of the chimneys, and around the station itself, and flood the surrounding district. As the waste gas from a ton of coal generally contains from 40 to 50 pounds of sulphur, an output of 10 tons of sulphur, or of three times that quantity of sulphuric acid, does not represent the output from a very large power station. Such waste gases pollute the atmosphere, destroy the vegetation and cause grave discomfort, if not actual injury, to those who dwell in the neighborhood.

Medical Education of Women

Lady Barrett, dean of the London (Royal Free Hospital) School of Medicine for Women, invited a number of representative women interested in medical education to a meeting to discuss the question of providing clinical teaching at the hospital for those who were denied facilities by the recent decision of the men's schools not to admit any more women students. A provisional committee was formed to convene a council to take steps to select a committee for the purpose of securing funds to increase the available number of medical and surgical beds at the Royal Free Hospital, so that no student need be debarred from entering medicine by the action of the men's schools. Lady Barrett said that they were faced with the fact that they had to find room for the average number of women, about thirty, who sought admission to the schools which had been closed. The new buildings at the Royal Free Hospital for the obstetric and gynecologic unit would, when finished, set free about forty beds which would be available for general medical and surgical cases, and these would afford opportunities for teaching the extra students. But the hospital could not be asked to support those beds, which they could use for private patients, and so add to their heavy expenses. If those beds were to be available they would have to be endowed, so that their cost to the hospital (about $25,000 a year) could be met. The cost of this endowment would be about $400,000. The beds ought to be ready in about three years, which would be about the time when the new students would need clinical instruction. It was up to them to see that the Royal Free was one of the finest hospitals in London and that its medical and surgical facilities for teaching were developed as extensively as its other branches. If they could get this done there need be no woman lacking facilities for a thorough medical education owing to the action of the men's schools. Dr. Louise Garrett Anderson said that a medical school for women alone had enormous advantages over a coeducational school. She quoted some experiences that she had had with her unit in France during the war. Some French medical women coming to the hospital were surprised to find the English women doing major operations, and said that they had not had facilities for such work, though they had had coeducation for many years. It was the same every place where there was coeducation in medicine. When women held the professorial chairs, women learned to trust women. When there was coeducation it had been found that the most important work was done by men.

The Health of Printers

A report has been issued by the industrial fatigue research board on "An Investigation into the Sickness Experience of Printers, with Special Reference to Tuberculosis," by Dr. A. Bradford Hill. The investigation was undertaken at the request of the Joint Industrial Council for the Printing and Allied Trades and of the Newspaper Proprietors' Association of London. "Why," asks Dr. Hill, "should printers have death rates from all other causes lower, as a whole, than the rates for all occupied and retired males and yet die from tuberculosis at a rate higher than that for all males?" His study shows that the initial disadvantage observed at ages 16-19 for all printers is derived largely from the high incidence of nearly all diseases at these ages among compositors. Compositors are almost entirely responsible for the high tuberculosis rate in this age group. In later life compositors and bookbinders have lower rates than other groups of printers, their advantage being extended to most groups of diseases, but the unfavorable experience of the compositors with regard to tuberculosis extends up to the age of 30 and reappears at ages 60-69. The high incidence of long period incapacity among bookbinders is derived from this cause and from diseases of the nervous system, but appears only in the age groups 20-29 and 40-49 and not in the intervening groups; and in view of the small number here exposed to risk it is possible that these rates are not significant. Dr. Hill suggests that the occupation of compositor attracts the physically weak and that the environment of composing rooms is not suited to this class. Compositors of ages 16-19 are greater sufferers not only from infectious diseases, such as diseases of the respiratory system, but also from rheumatism and diseases of the digestive and nervous systems. This suggests a low physique, without, however, precluding the possibility that other agencies are at work. Dr. Hill thinks that apprentices should be medically examined at their entry into the trade.

Airman Poisoned with Carbon Monoxide

The theory that Flight-Sergeant John William Pearce was dead before his airplane crashed near Godstone, Surrey, February 18, was put forward by experts at the inquest. Dr. Bronte, government pathologist, said that Pearce appeared well nourished. After describing the injuries, he said that he sent specimens of the man's blood to Dr. J. H. Ryffel of Guy's Hospital, and junior government analyst. Dr. Ryffel reported that the blood contained carbon monoxide hemoglobin to the extent of rather more than 50 per cent saturation, and the actual saturation at the moment of death would be higher than that found in the specimens and might actually have been high enough to cause death. The carbon monoxide could easily come from the exhaust of the engine, so that in this case the pilot might have been dead before the crash. Dr. Bronte was of the opinion that death was due to carbon monoxide poisoning and multiple injuries. The fumes could be inhaled gradually. There was no smell at all. The recipient gradually became slightly drowsy and fell asleep, then became unconscious, and died. In this case if the machine had made a perfect landing the pilot would not have recovered, as a fatal amount of carbon monoxide was present. Major P. J. Carre-Cooper, government inspector of accidents in connection with aircraft, said that the machine was fitted with an appliance for heating the cockpit with the warm air taken from and around a portion of the exhaust pipes. This appliance had been thoroughly tried out during the last eighteen months and had proved quite satisfactory, so that it was about to be put in general use. During his examination of the wreckage in this case he found that for some reason, which was now being investigated, the exhaust pipe on the starboard side had burst inside the hot air muff. The result of this hole being blown in the pipe was that if the pilot turned on the shutter which allowed the warm air to enter the cockpit he would take in the exhaust gas straight from the engine.

Physicians Unpaid for Road Smashes

The loss of fees by physicians who attend road accidents, in many cases amounting to several hundred pounds a year, is being keenly discussed by the profession. The royal automobile club has also drawn attention to the problem in a statement in which it says that physicians have been unable to collect any fees, either through inability to ascertain the names of the persons attended or because such persons have ignored their obligations. Dr. Alfred Cox, medical secretary of the British Medical Association, says that he has heard of physicians being unable to obtain their fees after attending injured people in road smashes from all over the country. Physicians when they are called out to an accident are placed in a fearful dilemma. They know that the chances are they will get nothing for their services. In addition to this, in case of dire emergency considerable inconvenience and perhaps financial loss may often be involved. The only claim a physician has, of course, is on the injured person. As a rule he is not in a position to pay, and one cannot ask him at the time whether he is going to pay. In any case, supposing he were conscious and well enough, it would be rather a brutal thing to do. He is taken to a hospital or sent home, and one may or may not have his address. Such a man who has been a victim in an accident does not feel prepared to pay fees immediately. He refers the physician to the other party, who declines to accept responsibility, referring the physician to his insurance company. The insurance company will probably say that it does not acknowledge the claim and will affirm that its client was not to blame. By that time the physician gets into such a state that he says "Hang the business" and loses his fees.

PARIS

(From Our Regular Correspondent)

March 20, 1929.

An Epidemic of Gastro-Intestinal Disorders in Paris

The epidemic of influenza that prevailed for several weeks in Paris was widespread, affecting the largest part of the population, but it was not severe, as a rule, and did not increase the mortality of the season to any great extent. It was followed, however, by another epidemic, equally benign, the nature of which has remained thus far obscure. The second epidemic was characterized by the ordinary symptoms of gastric disorder: nausea, vomiting, diarrhea, headache and little or no fever, all the symptoms subsiding in two or three days, leaving no traces other than a slight lassitude. Most of the patients did not even go to bed. But there were cases in almost every home of Paris for a period of two weeks. The hygienists engaged in many discussions on the subject. No specific organism was found in the stools of the patients. The typhoid and paratyphoid seroreactions remained negative. Some were inclined to incriminate the drinking water of the capital. The results of the inquiry made recently into the cause of the epidemic of typhoid in Lyons led the prefecture of Paris to furnish detailed information on the subject, from which it appears that the drinking water supplied to Parisians at present is either naturally pure or is purified with great care. Suspicion was then cast on the vegetables grown in the fields about Paris over which the contents of the sewers are spread. The sewage water thus diverted is in ever increasing quantity. These fields are absolutely saturated with the sewer contents, and the soil has not sufficient time to absorb the sewage deposits and to render them free from pathogenic organisms. That is why it has been suggested that more extensive fields be devoted to this purpose, but the inhabitants of the regions threatened will not listen to any extension of the system of *épandage*. The lettuce, the vegetables, and, in fact, all the products grown in these fields saturated with harmful micro-organisms, expose the consumers to intestinal diseases if they do not take the precaution to subject them, before taking them to the kitchen, or even directly to their tables, to a thorough washing. Finally, intestinal influenza was suggested. This form of influenza is not accepted by all pathologists, except as an occasional flare-up of the saprophytic organisms of the intestine under the influence of influenzal virus acting here as it does for the pneumococci and the streptococci in the nasopharynx and pulmonary passages. Many of the patients had not presented symptoms of influenza. A final hypothesis was proposed; namely, the simple action of the cold. But the epidemic had coincided, on the contrary, with the cessation of the severe cold. No plausible explanation of the epidemic was furnished.

Addition of Hygienists to the City Beautiful Commission

The increasing population of Paris, together with the lack of housing facilities, owing to the transformation of many apartment houses into stores, banks, motion picture houses and automobile garages, has compelled the municipality of Paris to establish a general plan of growth for the capital, with construction of numerous apartment houses and other dwellings. The latter have already multiplied in the environs of Paris but without any definite plan, with the result that in many of the new sections there are no well defined streets, no sewers, no water system or electric light system. A commission has therefore been appointed to prepare for the construction of adequate roads, the erection of new buildings, and, above all, the demolition of old dwelling houses in the central sections of the city, dating from periods several centuries back, and which are veritable hotbeds of infection, constituting, however, historic landmarks that have been spared too long amidst new and sanitary quarters. Fortunately this commission has recently been augmented by the addition of a number of hygienists, whereas before it contained chiefly politicians and architects. The opinions of the hygienists will be valuable in determining the selection of buildings to be condemned and demolished; for the disposition of new buildings to be erected; for the location of open-air schools, playgrounds, athletic fields, and dispensaries for tuberculosis and venereal diseases. The group of hygienists, of which M. Marchoux, professor at the Institut Pasteur, is the chairman, includes professors on the faculty of medicine, physicians to the hospitals, heads of services in the Institut Pasteur, and many other well qualified men.

The Part Played by the Motion Picture Theater in the Development of Psychic Disorders in the Child

Dr. Edgard Leroy, in an article in the *Mouvement sanitaire*, calls attention to the pernicious effects of certain films on the minds of children. He cites a number of cases in which children have shown signs of morbid fear, nightmare, grave modifications of character, and even perverse tendencies, the onset of which could be traced to the presentation of a film depicting some crime. He admits that these effects would not have been produced if the subjects had not been predisposed, presenting a psychic defect that required only such an occasion to manifest itself. But such predisposed children are very numerous among the working population, partly owing to the fact that congenital syphilis is not uncommon. In an evening's entertainment during which several films are seen, some of which are moral and instructive, some children are chiefly impressed by those that find an echo in their preexisting bad instincts. There is no doubt that the motion picture has become the "school of delinquency," for the reason that their nature induces them to regard as heroes the bold perpetrators of the crimes that they see displayed and to overlook entirely the compensating effect of the intervention of justice, which is presented as a side issue. These facts have attracted attention in all countries. In Belgium, children under 16 are not permitted to

attend public motion-picture houses. There are special theaters in which only instructive or amusing films, that exert no bad moral effect, are presented. Many philanthropic societies that are interested in child welfare do not fail to introduce in their programs a number of special films for children. Dr. Leroy thinks that the problem deserves the attention of the health section of the League of Nations, and if one cannot prevent the presentation of films that impair the nervous system of adults, and, to an even greater extent, of children, he suggests that films especially designed for children shall be prepared, which shall be subject to the censorship of a committee composed of educators, physicians and heads of families.

Repercussions of Gastro-Intestinal Infections on the Nasopharyngeal Passages

An interesting observation has been made by Dr. Armaingaud, a physician at the famous mineral springs of Cauterets (Pyrenees), the clientele of which is composed almost solely of patients with chronic inflammation of the larynx, the pharynx and the nasal passages. He has observed that all these patients have a chronic infection of the intestine, particularly with *Bacillus coli*, and often also hepatic insufficiency. This observation induced him to study the rôle of intestinal microorganisms in laryngeal disorders. He admits that these organisms, following the blood stream, frequently invade the mucous membrane of the upper respiratory passages. Certain facts that have long been known may be cited in support of this view. Edema of the glottis in typhoid patients is caused by a migration of *B. perfringens*. Many persons on the day following excessive eating have hoarseness and coryza. The chronic laryngitis of alcohol addicts with liver disorders is likewise well known. In the opinion of Armaingaud, as well as Dr. Flourie and a number of others, there is a veritable enteronasopharyngeal syndrome (just as there is an enterorenal syndrome, as described by Heitz-Boyer), which is dominated by the remote migrations of *Bacillus coli*. This conception is supported by therapeutic observations. Disinfection of the intestine by means of the Vincent antibacillary serum has been of some value in the treatment of laryngitis.

The Rôle of the Physician in Colonization

Marshal Lyautey, who was the great pacifier of Morocco, presented in a recent public address a number of aphorisms with regard to the rôle of the physician in connection with colonization movements, which deserve special mention: There is no fact more firmly established than the rôle of the physician as an advance agent in a country that has been newly opened up; there is no one else so apt in awakening the sympathy of the native population, and in promoting peace conditions. Send me four physicians and I will send back four companies of soldiers. Surgical operations cost less than military operations. Medicine must seek out the natives in their original abodes. Medicine will be able to add that touch of human interest to a mission without which the work of no organization will be effective over here. There is no such thing as civil medicine and military medicine, of which we so often speak; all we need here is "a physician" pure and simple. This conception has been realized and our twin hospitals are the result. Not an inch of territory in Morocco should be allowed to shirk its responsibilies; there must be no dead pockets anywhere. In case of an epidemic, there is the advantage, among others, that all forces can be mobilized in an instant against the point threatened; all prophylactic measures can be instituted, and what I have termed a sanitary dictatorship can be established, to which all the services of the protectorate must yield. There are no administrative formalities in the way—the details are arranged afterward, not beforehand. That is my organization, and all that could be expected of a new country has been accomplished.

ITALY

(From Our Regular Correspondent)

Feb. 28, 1929.

Promotion of Increase of Population

The council of ministers, at the request of the premier, recently approved certain measures calculated to promote the growth of the population. As a result of the council's deliberations, married men with children will be given preference in competitive examinations for public office, and married men without children will be favored as against unmarried men. This principle will not be applied to the army forces but will be recognized in the awarding of contracts to private parties and in administrative concessions, as well as in the allocation of dwellings.

Other dispositions concern the protection of workers and employees during pregnancy and the puerperium. It has been made compulsory for women connected in any way with industrial or commercial enterprises to refrain from work during the last month of pregnancy and the first month after childbirth.

Employers of labor are, on the other hand, compelled to hold open positions for women who drop out for two months on account of pregnancy and the puerperium.

The obligation of insurance in the Cassa di maternità (insurance chest for mothers), which formerly applied only to workers in industrial enterprises, has now been extended to the employees and workers connected with commercial organizations. The aid to mothers has been greatly increased and the ruling has been established that absence from work on account of childbirth is to be regarded as a case of involuntary unemployment, for which reason the working mother will be entitled to unemployment aid.

The Death of Prof. Ernesto Tricomi

The death, from bronchopneumonia, of Prof. Ernesto Tricomi, director of the Clinica chirurgica in Palermo, has been announced. Born in Caltanisetta in 1859, he was graduated in medicine and surgery from the University of Naples, at which institution he remained as assistant, first in pathologic anatomy and afterward in clinical surgery. In 1889, he obtained, through a competitive examination, the chair of pathology and clinical surgery at the University of Padua; became then professor of clinical surgery at the University of Bologna, and, for the past twenty-five years, directed the Clinica chirurgica at the University of Palermo. He published more than a hundred scientific works, among which the most important are works on suppurations and surgical infections in general; articles on splenectomy, and a treatise on surgical infections, which was translated into various languages. He was a bold operator, having been the first to perform in Italy (in 1884) the resection of all the left lobe of the liver, and was the second surgeon in the world (after Schlatter) to perform a total gastrectomy. He devised and described operative methods for the treatment of crural hernia and floating kidney. He founded at Palermo the Istituto di medicina sociale, and was, for many years, president of the Accademia medica in that city.

Meeting of the Società di Dermatologia e Sifilografia

The Tusco-Umbrian section of the Società di dermatologia e sifilografia held its fourth session in Siena, under the chairmanship of Prof. Lodovico Tommasi, director of the Clinica dermosifilopatica at the University of Siena. Professor Tommasi gave an account of a case of multiple dermo-epidermic granulomatosis in a subject with a pontocerebellar lesion of undetermined nature.

Dr. Serra-Costa discussed the diagnostic significance of leukocytic reactions following injection of vaccines and protein substances, and stated that no specificity could be attributed to such reactions, since they could be noted in the same subject

following the use of vaccines and various substances. In researches carried out on persons affected with syphilis and other disorders, he found that, as a result of injections of antisyphilitic remedies, the number of leukocytes does not undergo any constant modifications.

Meineri, on the basis of experiments that he performed, confirmed the great variability in the number of leukocytes found in the peripheral blood as the result of widely different dermic stimuli.

Cortella reported the results of some of his researches on the changes in the nervous system due to poisoning from radium acetate. In animals (white rats) to which he gave that substance, he found changes in the meninges and in the nerve substance. The region of cornu ammonis is the most affected; it presents rarefaction and sclerosis of the pyramidal cells, diminished stainability, and peripheral displacement of the nucleus and the nucleolus. Such lesions are similar to lesions of the nervous system in epileptic persons.

Mazzanti discussed the general effects of therapeutic applications of radium and roentgen rays. Of 100 patients subjected, on the basis of various indications, to treatment with radium or roentgen rays, he noted almost constant diminution of blood pressure, especially of the maximal pressure, and variations in the predominant tone of the vegetative system in the subject.

Cappelli recounted his researches in four cases of acute vulvar ulcer and developed certain considerations in regard to the morphology and pathologic histology of this type of ulcer, the pathogenesis of which is still obscure.

Construction of Hospitals and Clinics in Turin

The *Gazzetta ufficiale* has published a decree approving the constitution of a union of several bodies—among others, the commune of Turin and the ministry of public instruction—for the construction in Turin of suitable buildings for the Ospedale civile, a dermosyphilopathic clinic, the Cliniche universitarie and the Istituti scientifici.

As part of the hospital-clinic system, there will be constructed a hospital for acute diseases, consisting of two detached pavilions, with a capacity of 200 beds each, and each having its own laboratory and annexes. In addition, pavilions will be erected for the various clinics; also several other buildings, to one of which will be transferred the present Ospedale di S. Lazzaro. The Ospedale di S. Giovanni will, however, be preserved, but the number of beds will be reduced to 400, exclusively for patients with acute diseases. For this new construction the sum of 52,000,000 lire has been appropriated, which does not include the value of the site or the cost of furnishings and equipment.

Compulsory Health Insurance

Recent legislation has made health insurance compulsory for the personnel connected with civil maritime and aerial navigation. The law considers entrepreneurs as employers and all those belonging to the navigating personnel as employees. The insurance begins from the day on which the employee enters the service.

Regulations Pertaining to the Practice of Obstetrics

The new regulations for the practice of obstetrics by midwives have been published. The law prohibits midwives from performing operations that require the use of surgical instruments, and from performing manual operations on the fetus in the uterus. In an emergency, if it is impossible to secure a physician in time, midwives may perform certain well defined manual acts, for which they assume the direct responsibility. The midwife is required to take periodically the temperature of the puerperant to whom she is giving aid, and whenever the temperature shall exceed 38 C. she must inform the physician of the health center, or, if that is not feasible, the communal health officer. A midwife who has given treatment to a woman with any puerperal infectious process must advise the health officer, who will prescribe the form of disinfection that she must employ.

Every midwife must make note in two separate registers of the births and miscarriages in which she renders aid, and must present her report to the health officer at the end of each month.

Every midwife must be provided with a kit containing the necessary means of assistance in a normal birth and the needed aids for the arrest of hemorrhages.

The communes will gratuitously provide midwives with antiseptics and all material needed for the assistance of the poor during childbirth.

RIO DE JANEIRO

(From Our Regular Correspondent)

March 15, 1929.

Studies on the Dosage of Antitoxic Serum Against the Venom of Poisonous Snakes

Dr. Lucas Assumpcão, assistant professor of the Institute of Hygiene of São Paulo, presented his experiments, at a recent meeting, on improving the methods used to determine the antitoxic power of serums against the venom of the poisonous snakes of Brazil. After a brief review he went over the methods of determining the dosage in vitro. The speaker confirmed the previous work of some Brazilian investigators, making it evident that with regard to Brazilian snakes, it is impossible to take any antihemolytic effect for the poison of the cobra de capello *Naja tripudians* or the *hungarus* as a working basis, as Calmette did. He studied the methods of Vital Brasil and Vellard and modified them with relation to the antibrothropic serum. Then he experimented on the dosage in vitro, using the methods of Calmette, Vital Brasil, Kraus, Doerr and Rocha Botelho. Finally he came to his own experiments, which he divided into four parts, studying separately: (*a*) the relation between the anticoagulative power and the toxic power of the poison of *Lachesis lanceolatus;* (*b*) the relation between the toxic power of the same poison and the neutralizing power of specific serum; (*c*) the relation between the coagulative power and the toxic power of the poison of *Crotalus,* and (*d*) the tests made with different concentrations of the anticoagulin on the poison. The speaker presented the conclusions he had reached as a result of his investigations.

Transfusion Therapy in Infectious Conditions

Dr. Celso Barroso of São Paulo has been resorting to transfusions of whole blood in infectious conditions since 1926, with gratifying results. All his donors have been previously vaccinated with the specific type of germ that caused the infection whenever possible. He says that transfusion under such conditions exerts a beneficial effect in all infections, but principally in those which are accompanied by intoxication and anemia. It is not always sufficient treatment, but, beyond that most of his cases were treated only with intramuscular injections of blood from a donor who had likewise been vaccinated. Whenever possible, the autogenous vaccine must be preferred; when it is not possible, it is necessary to make a careful choice of the vaccine that is to be used, after having determined the type of etiologic micro-organism of the infection. After the donor has been chosen on the basis of the type of his blood, Dr. Barroso administers the first dose of vaccine, and at two day intervals thereafter the second and third doses. Only in very serious cases is blood taken for a transfusion or intramuscular injection immediately after the first dose of vaccine is administered. The donor is generally not used until after he has had the second dose of vaccine. Dr. Barroso reports that he has had good results with blood drawn from twenty-four to forty-eight hours after the first dose of vaccine was administered, although recovery took place only after the donor had received the second

or third dose. It has never been necessary to administer more than three doses of vaccine. In cases of bronchopneumonia he has always resorted to Weill-Dufout's vaccine, which is prepared with micro-organisms from the lungs of infants with bronchopneumonia, and has had gratifying results. Every ampule of this vaccine contains 400 million pneumococci, the same amount of enterococci, 150 million staphylococci and 50 million *Micrococci tetrageni.* When indicated, the author thinks it is desirable to increase the concentration and to add streptococci or use a streptococcic vaccine. For other infections, principally in pyelitis, it is generally possible to use an autogenous vaccine.

Gastropylorectomy in the Treatment of Gastric and Duodenal Ulcers

Dr. Guerra Blessmann of Porto Alegre says that with precaution and care, and principally with a more general resort to splanchnic anesthesia, gastropylorectomy is the ideal and most successful method of treatment for gastric ulcer. The technic to be used varies with the locality and variety of the ulcer, as the extent of gastric resection varies with the degree of hyperacidity present. Resection must be more extensive in cases in which there is hyperacidity. Thus the rôle of hyperacidity in the evolution of peptic ulcer of the jejunum, either by aiding its inception or by serving as an obstacle to its healing, is eliminated. Gastro-enterostomy does not modify the degree of hyperacidity, and this constitutes one of its defects. As a method of treating the ulcer, gastropylorectomy surpasses gastro-enterostomy, because some time after it is done patients do not return with the same symptoms they had before the operation. Cases of jejunal ulcer are limited after gastropylorectomy, and for this reason the appearance of this lesion and its more frequent and dreadful complications (gastrojejunocolic fistula, and perforation) are not feared. Gastropylorectomy is a means of prophylaxis against gastric cancer. It is the surgical treatment of choice for gastric ulcer, and the treatment that is indicated in duodenal ulcer whenever there is hyperacidity. Gastro-enterostomy should be performed whenever gastropylorectomy is contraindicated. Gastro-enterostomy is definitely indicated only in duodenal ulcer without hyperacidity.

Uterine Inversion

Prof. Fernando de Magalhães, of the Faculty of Medicine of Rio de Janeiro, says that uterine inversion is rare. The author has compiled only ten cases from 1910 until the present time. Kustner considers the inversion chronic when it persists for a month, and Pozzi when it persists for a month and a half. In treating chronic inversion the speaker prefers vaginal hysterectomy to other methods. Slow reposition, as may be obtained by Gariel's pessary, is empiric, anachronistic and impracticable and can have only temporary success. Schauta's theory gives inertia, probably due to a lesion of the muscle fibers, as the etiologic factor of the inversion. Consequently, as the organ is already affected and the chronicity of the inversion gives it a pathologic transformation, it may readily be injured further by temporary measures because of its abnormal physiology. Thus hysterectomy is the method of treatment of choice.

The Use of Phenyl Salicylate in Pyuria

Dr. Mario Olinto, of the Abrigo Hospital Arthur Bernardes, of Rio de Janeiro, says that it is rare to find a physician who has not used methenamine in the treatment of pyuria. This drug sometimes is harmful, provoking vesical spasms, renal irritation with hematuria, and sometimes anuria. Langer states that the splitting of methenamine into formaldehyde occurs only with a urinary acidity of 5.7. As a result of observations, which he presented, the author prefers phenyl salicylate in the treatment of pyuria because it acts in acid or alkaline mediums, is easy to administer and manage, and is well tolerated even by very young infants.

BERLIN

(From Our Regular Correspondent)

March 23, 1929.

Influenza in Hamburg

A session of the Hamburger Aerztlicher Verein, held a few weeks ago, was devoted to a comprehensive discussion of the influenza epidemic in Hamburg. As similar conditions have existed also in other parts of Germany, the report of the discussion before the Hamburger Verein, as contained in the *Deutsche medizinische Wochenschrift,* has considerable interest. As influenza is not a notifiable disease and cannot be diagnosed so unerringly as diphtheria and typhoid, for example, by the demonstration of the presence of the offending organism, the enumeration of the influenza cases is dependent on indirect evidence and is more or less inexact. According to the Hamburg bureau of health, the spread of the disease is judged by the patients in the hospitals and the number of deaths that occur, the latter furnishing, at the same time, evidence as to the gravity of the disease in general. At the beginning of the five-week period extending from Dec. 30, 1928, to Feb. 2, 1929, there were about thirty-three cases in the four large hospitals of the city. Then, by January 10 to 15, the number had increased to 200, which number showed little change for several days, after which an abrupt rise brought the number of cases up to 600 by January 28. The total number of deaths from influenza up to Feb. 2, 1929, was seventy-six. Fifteen of these deaths were in the 0-30 age group of patients; twenty-six in the 31-60 age group, and thirty-five in the 61-100 age group. The author compares the number of hospital cases and the number of deaths in 1929 with the corresponding curves for the years 1918, 1920, 1927 and 1928. In Hamburg, 1,732 deaths from influenza were recorded in 1918, 1,167 in 1920, 177 in 1927 and 102 in 1928, as compared with seventy-six during the first five weeks of this year. It is interesting to note (and this should be taken into account in comparing the curves) that in 1918 the diagnosis of influenza was not made so frequently on admission to the hospitals as it was after a few days of hospitalization. This has changed and now, on admission to the hospital, the diagnosis is often "influenza" when, in reality, a "nonspecific cold" would be more accurate.

According to Professor Hegler, 139 women and 149 men were admitted, during the month of January, 1929, to the Allgemeines Krankenhaus St. Georg with the diagnosis "influenza." Of these 288 cases, 15 per cent were classed as "severe," 25 per cent as "moderate," and 60 per cent as "mild." The total number of deaths from influenza (mostly due to lung complications) was twenty-four, in which the diagnosis "influenza" was confirmed at necropsy. Evidence for the contagious nature of the disease was found in the increased incidence in certain groups and in the comparatively large number of infections in the homes; for example, on Feb. 5, 1929, forty persons of the attending personnel were ill from the disease. The clinical picture and the course of the disease were not essentially different from those of former epidemics. During the past two weeks the cases have diminished in number in most sections but have increased in severity. As to complications other than those of the lung and the pleura, Hegler observed four cases of purulent mediastinitis, probably due to a necrosis of the mediastinal pleura. Involvement of the nervous system, the accessory sinuses and the ears has not been common. Severe herpes zoster involving the first division of the trigeminal nerve was observed in one instance. In one case, hemorrhage into the rectus abdominis muscle, with waxy degeneration, simulated acute appendicitis. As a therapeutic measure, Hegler recommends quinine at the onset, and in very severe cases venesection and transfusion of considerable amounts of normal blood or convalescents' blood.

Dr. Mahlo's report was as follows: The course of this year's influenza is mild. There are more cases than usual among the

children. Pain on pressure on the inner surface of the tibia (lower third) occurs but is not common. The duration of the disease was short. Fever lasted only a few days. Complications involving the lungs, the ears and the circulation were observed in only a few cases. Two atypical forms were discovered. One type began with acute gastro-enteritis; twelve mucous stools in a single night were nothing unusual. The usual remedies were of little avail. The diarrhea was, however, relieved at once by sweating induced therapeutically. In the second atypical form, the patients complained of pains resembling those of lumbago or torticollis, associated with marked anorexia. On inquiry, it was learned that such patients had had a slight fever for several days previous to the onset of the pains. These constituted, therefore, the final stages of an unrecognized influenza. Acetylsalicylic acid is still the best remedy for the treatment of influenza. After-effects of the disease (lassitude, loss of appetite) are combated by rising early and, if the weather permits, by short walks. Alcohol has no prophylactic value; instead, daily doses of 0.5 Gm. of acetylsalicylic acid are recommended.

Professor Fahr displayed a number of pictures that revealed the nature of the changes in the respiratory organs, resulting from influenza: the hemorrhagic character of the inflammatory foci, the tendency to focal breaking down of the tissues, and the hemorrhagic, necrotic inflammations of the larynx, the trachea and the large bronchi. He called attention to the circumstance, often emphasized, that the influenza virus prepares the way into the tissues for the ordinary types of cocci. He pointed out the characteristic invasion of the tissues with cocci and the tendency of the inflammation to invade the vessel walls. He regards it as highly probable that this damage to the vessels has considerable bearing on the unfavorable course the disease sometimes takes.

Professor Embden had observed, during this year's epidemic, a number of cases of encephalitis, and other nervous complications of neuralgia and sciatica.

Professor Schottmüller discussed the subject as to whether or not it is scientifically possible to distinguish, in illnesses of this nature, a simple inflammation of the upper air passages from true epidemic influenza. He emphasized that severe typical cases of genuine grip can be recognized as such mainly by the markedly hemorrhagic inflammation of the trachea, which is often revealed clinically by the hemorrhagic nature of the purulent sputum or by hemoptysis, which has its origin in the tracheal mucosa. In the majority of cases, however—especially at the onset—it is impossible to decide which of the types in question is to be accepted as the diagnosis. In any event, it is impossible to discover the specific causative agent by instituting a bacteriologic examination of the sputum, for the reason that it is unknown. It is an interesting question as to what caused the severity of the epidemic of 1918-1919, and the relatively mild nature of the epidemics of recent years, including that of this year. The majority of influenza patients who died in the years 1918 and 1919 succumbed to a secondary infection with streptococci, and especially from streptococcic empyemas. The characteristic pleural exudate was produced by the streptococcus. While it is doubtless true that the influenza virus manifested an especially high virulence at that time, and that persons had less immunity to the disease than in later years, it is equally certain that the malignant nature of that epidemic was due to an especially virulent streptococcus attacking the population at the same time. The fact that this secondary streptococcic infection has been almost entirely absent during the following years explains to a great extent the mild nature of the later epidemics. On the other hand, we observe complications that are caused by other pathogenic agents, including the pneumococcus and the staphylococcus. These do not appear usually at the onset but rather after the disease has run its course for a few days or even when it is retrogressing, with the result that the patient is attacked by a chill, followed by the reappearance of fever, and not until then are the symptoms of pneumonia recognizable—often only in one lobe but also bilaterally, mostly in the lower lobes, though sometimes there is a pneumonia of the upper lobes. With regard to the clinical course of the disease, it will be noted that the pneumococcus or the staphylococcus from the trachea in the bronchopneumonic form attack a part of the lung, as a rule, in such a generalized manner that one cannot distinguish clinically whether it is bronchopneumonia or lobar pneumonia. On the other hand, in contrast with the gelatinous, ocher-colored sputum of croupous pneumonia, the sputum of influenza patients has a peculiar hemorrhagic, viscid nature. In many cases, following the development of a pneumonia or bronchopneumonic foci, there appears an inflammatory exudate, which, in the author's experience, is not usually infected and is absorbed spontaneously. Schottmüller does not think that the present epidemic has been particularly mild. A considerable number of patients have succumbed to pneumonia.

AUSTRALIA

(From Our Regular Correspondent)

March 12, 1929.

Presidential Address at British Medical Association Conference

At an open session during the annual conference of the British Medical Association in New Zealand, Dr. J. S. Eliott delivered his presidential address on the salient points of recent knowledge gained by scientific research in its prosecution as an aid to medical practice. The address was listened to throughout the dominion by means of wireless broadcast both directly and by relay. Dr. Eliott described the advances that had been made in the conquest of tropical diseases; he considered the wonders and limitations of the human body, and concluded that we are living under a new and fuller dispensation in the interpretation of natural science, which includes medical science. He looked forward to an even fuller and more balanced knowledge in the future, but warned that future discoveries will not spring full bloom from barren soil. There are long years of preparation and experiment before us, and by this means only will the veil of ignorance be pushed further back.

Mental Deficiency Control in New Zealand

As a result of the Mental Defectives Act of 1928, a board has been appointed to "secure the care, treatment and training of those who are congenitally mentally deficient in institutions —where institutional care is necessary—apart from those primarily intended for the care and treatment of persons suffering from mental disorders." The committee is composed of Dr. T. B. Gray, director-general of mental hospitals, as chairman; Dr. T. H. A. Valintine, director-general of health; Dr. John Russell, assistant director of mental hospitals; Mr. T. B. Strong, director of education; Mr. B. L. Dallard, controller-general of prisons; Miss Jean Begg, general secretary of the Y. W. C. A., Auckland, and Mrs. Peter Fraser, mental hospitals visitor, Wellington. Miss Jean Begg has had experience in social reform activities extending over a number of years spent abroad. She was for some time engaged in missionary work in Samoa under the London missionary society, and after the war visited the United States to study at the New York school of social service. Her wide range of experience in America also extended to the realm of the women police.

One of the board's first duties will be the compilation of a register of all mentally defective persons who, in its opinion, may be classed as "socially defective." Provision is made for the addition and removal of names and for appeal to a supreme court judge against retention of the name of any person who considers that his mental state is such as to make the retaining of his name on the register unwarranted. The board is also empowered to establish clinics for the diagnosis and treatment

of mental conditions, the clinics to be conducted by qualified psychiatrists. The original proposals regarding sterilization of mental defectives were considerably modified during the passage of the act (THE JOURNAL, Oct. 27, 1928, p. 1302).

Cancer Treatment and Research in New Zealand

There are no special cancer hospitals or even cancer wards in the dominion of New Zealand. The four main centers, it was reported by a cancer conference, are considered to be reasonably well equipped and the surgical treatment which could be given cancerous conditions in those centers was considered to be of a reasonably good order. At present in New Zealand there are stocks of radium at Auckland, 319.61 mg.; Wellington, 1 Gm.; Christchurch, 508 mg., and Dunedin, 286 mg. Requests by the smaller centers for radium were discouraged by the health department, as it was held that radium was a therapeutic agent which should be used only by persons highly skilled and thoroughly trained in its use.

Comparatively little had been done in New Zealand in regard to research. It was understood by the cancer conference that there was still available in the possession of the Otago University a sum of £1,600 from Dr. N. Fulton's cancer investigation fund. In addition, there was a bequest in Christchurch known as the Travers bequest of £60,000, the feeling of the trustees being that it should be expended on cancer research.

Dr. Sampson Handley, the London surgeon, gave the benefit of his long experience in the treatment of cancer to the New Zealand conference. He considered that there was almost enough radium in New Zealand to make a serious start with treatment, although the amounts at Auckland and Dunedin seemed rather inadequate at present. There was not enough, he considered, so that all the methods available for using radium could be employed. For country districts, the emanation method of using radium was advised. Dr. Handley advocated the establishment of a central institution for the treatment of cancer. He proposed fifty beds at the main center, with special cancer wards at other centers. He also urged that an experienced histologist be appointed in connection with the cancer hospital. He advised that one of the staff of each of the four centers go abroad to London, Paris, Stockholm and Brussels to make a special study of methods of employing radium.

In his address on cancer to the conference of the British Medical Association at Wellington, Dr. Handley urged the necessity of educating the public in the early signs of cancer, teaching them that early cancer is painless, and that absence of pain does not exclude the possibility of cancer. "They must realize above all," he said "that early cancer is curable when it occurs in accessible positions, and that the worst pain connected with most operations for cancer under modern conditions is the pain of anticipation." The main points of this address were published in nearly all newspapers throughout Australasia.

New Appointment at University of Sydney

Dr. Harvey Sutton, a Rhodes scholar, has been appointed to the position of director of the department of health and tropical diseases at the University of Sydney. Dr. Sutton is one of the most outstanding figures in the public health field in Australia. For the past eight years he has been the principal medical officer of the New South Wales education department. He has not only placed the work of school medical inspection on a sound footing but has also been a leader in all community efforts relating to hygiene and public health. He revised the procedure of medical inspection, with the result that in thickly populated areas children are examined annually instead of at three-year intervals. Through his efforts, the department of education now has eleven traveling dental clinics and three ophthalmologists, whose work is making itself felt beneficially in country districts where trachoma is prevalent. Dr. Sutton proposes shortly to take a world tour during which he will study problems relevant to his new appointment.

Marriages

FREDERIC G. SANFORD, Jersey Shore, Pa., to Miss Evelyn Laura Keys of Williamsport, March 19.

MILTON BENJAMIN ROSENBLUTH to Miss Muriel Kathryn Stiefel, both of New York, March 27.

JOHN PATRICK BURKE, JR., California, Mo., to Miss Alma Blumstengel of St. Louis, April 10.

Deaths

Arthur Solomon Loevenhart ✠ professor of pharmacology and toxicology, University of Wisconsin Medical School, Madison, died, April 19, at the Johns Hopkins Hospital, Baltimore, following an operation for gastrojejunal ulcer. Dr. Loevenhart graduated at Johns Hopkins University School of Medicine in 1903, and served on the faculty of his alma mater in the departments of pharmacology and physiologic chemistry until 1908, when he was appointed professor of pharmacology and toxicology at the University of Wisconsin Medical School, where he remained until the time of his death. During the World War, he was chief of the pharmacologic section of the research division of the chemical warfare service, and since 1920 had been a consultant to the chemical warfare service. He was associate editor of the *Journal of Pharmacology and Experimental Therapeutics*, vice chairman of the Section on Pharmacology and Therapeutics of the American Medical Association in 1929, a past president of the American Pharmacological Society and a member of the American Chemical Society, the Society of Biological Chemists, the American Physiological Society, the Associated Anesthetists of the United States and Canada, the American College of Physicians, and the American Society of Experimental Biology and Medicine. Dr. Loevenhart carried forward the clinical application of tryparsamide in the treatment of syphilis of the central nervous system, and did much research work on oxidizing antiseptics and other subjects. His department of the university was widely known for the production of many brilliant students and investigators.

A. Schuyler Clark ✠ New York; Columbia University College of Physicians and Surgeons, New York, 1899; member of the Medical Society of Jersey; served during the World War; on the staffs of the New York Skin and Cancer Hospital, Roosevelt Hospital, Hospital for the Ruptured and Crippled, New York Post Graduate Hospital, Beekman Street Hospital, New York, St. Peter's General Hospital, New Brunswick, N. J., and the All Souls' Hospital, Norristown, N. J.; aged 54; died suddenly, March 22, of heart disease.

Bert Bessac Rowe ✠ Saginaw, Mich.; University of Michigan Medical School, Ann Arbor, 1888; formerly professor of principles and practice of surgery and clinical surgery, Michigan College of Medicine and Surgery, Detroit; past president of the Saginaw County Medical Society; aged 66; on the staffs of the Woman's Hospital, St. Mary's Hospital and the Saginaw General Hospital, where he died, March 27, of septicemia.

Richard Walker Bolling ✠ New York; University of Virginia Department of Medicine, Charlottesville, 1905; member of the American Surgical Association and the American Society of Clinical Surgeons; served during the World War; aged 46; on the staffs of the Babies' Hospital and St. Luke's Hospital, where he died, April 6, of septicemia following an ulcer of the foot due to an injury.

David M. Kellock, Harrisville, N. Y.; Queens University Faculty of Medicine, Kingston, Ont., Canada, 1890; member of the Medical Society of the State of New York; for twenty-two years health officer of the consolidated health district of Harrisville and Diana; aged 63; died, March 9, at the Hepburn Hospital, Ogdensburg, following an operation for enlarged prostate.

John Colwell Teas, Flushing, N. Y.; University of Pennsylvania School of Medicine, Philadelphia, 1902; served during the World War; on the staffs of the Flushing (N. Y.) Hospital and the Nassau County Hospital, Mineola; aged 50; died, April 11, of heart disease.

Jesse F. Boone ✠ Chicago; Hahnemann Medical College and Hospital, Chicago, 1912; served during the World War; on the staffs of the Chicago Memorial and Jackson Park hospitals; aged 45; died, April 2, of heart disease, nephritis and uremia.

Ben F. Goodlett, Travellers Rest, S. C.; Medical College of the State of South Carolina, Charleston, 1879; member of the South Carolina Medical Association; aged 73; died, March 16, at Dr. Tyler's Hospital, Greenville, of pulmonary tuberculosis.

J. Herbert Darey, Sioux City, Iowa; McGill University Faculty of Medicine, Montreal, Que., Canada, 1885; past president of the Woodbury County Medical Society; aged 68; died, March 10, of myelitis, due to necrosis of the seventh dorsal vertebrae.

George Stuart Larkin, Mount Vernon, N. Y.; New York Homeopathic Medical College and Flower Hospital, 1928; intern, United Hospital, Port Chester; aged 25; was killed, in February, near Stamford, Conn., in an automobile accident.

Ollie Reed Stewart, San Antonio, Texas; Chicago College of Medicine and Surgery, 1907; member of the State Medical Association of Texas; aged 47; died, February 19, at the Santa Rosa Infirmary, of pneumonia and acute toxic encephalitis.

Herman Prince Marshall ⊕ Spokane, Wash.; Harvard University Medical School, Boston, 1904; past president of the Spokane County Medical Society; aged 47; died, March 31, at the Sacred Heart Hospital, of coronary thrombosis.

Charles Edward Hosmer, Billerica, Mass.; Harvard University Medical School, Boston, 1867; Civil War veteran; aged 91; died, April 9, at the Lowell (Mass.) General Hospital, of fracture of hip, complicated by pneumonia.

Archibald B. Elkin, Atlanta, Ga.; Atlanta College of Physicians and Surgeons, 1910; member of the Medical Association of Georgia; aged 44; died, March 29, of septicemia following a slight laceration of the scalp.

Charles Nelson Goldsborough, Louisville, Ky.; Hospital College of Medicine, Louisville, 1883; member of the Kentucky State Medical Association; aged 67; died, March 23, of cerebral hemorrhage and chronic myocarditis.

Alice Russell Bowman, Brooklyn; New York Medical College and Hospital for Women, 1899; member of the Medical Society of the State of New York; aged 63; died, March 28, of myocarditis and diabetes mellitus.

Chester F. Markel, Columbia, Pa.; College of Physicians and Surgeons, Baltimore, 1876; at one time bank president; formerly on the staff of the Columbia Hospital; aged 76; died, March 3, of cerebral hemorrhage.

John Samuel Foat, Ripon, Wis.; Rush Medical College, Chicago, 1902; member of the State Medical Society of Wisconsin; veteran of the Spanish-American War; aged 56; died, March 22, of amebiosis.

Joseph Edward Gross, Fall River, Mass.; University of Vermont College of Medicine, Burlington, 1922; member of the Massachusetts Medical Society; aged 31; died, March 10, of chronic myocarditis.

Frederick W. Van Buskirk ⊕ Pottstown, Pa.; University of Pennsylvania School of Medicine, Philadelphia, 1889; on the staff of the Pottstown Hospital; aged 61; died, March 21, of cerebral hemorrhage.

Pierce Edwin Griffin, Edison, Ga.; Atlanta College of Physicians and Surgeons, 1901; member of the Medical Association of Georgia; aged 52; died in March, at Albany, of heart disease and nephritis.

Howard Jefferson Ware, Cincinnati; Medical College of Ohio, Cincinnati, 1897; served during the World War; aged 52; died, March 27, at the Christ Hospital, of myocarditis and arteriosclerosis.

Sanford Oscar Baldwin ⊕ Framingham Center, Mass.; Jefferson Medical College of Philadelphia, 1896; for many years on the staff of the Framingham (Mass.) Hospital; aged 61; died in March.

Jesse C. Miller, Myrtlewood, Ala.; Memphis (Tenn.) Hospital Medical College, 1901; member of the Medical Association of the State of Alabama; aged 52; died, Nov. 30, 1928, at Selma, of pneumonia.

Paul Oren Anderson ⊕ Clarence, Iowa; State University of Iowa College of Medicine, Iowa City, 1910; served during the World War; aged 43; died, April 1, of a self-inflicted bullet wound.

David Dunlop Jennings, Brooklyn; Medical Department of the University of the City of New York, 1886; police surgeon; aged 64; died, March 28, at Ocala, Fla., of heart disease.

Burdette Post Craig ⊕ Jersey City, N. J.; Bellevue Hospital Medical College, New York, 1885; on the staff of the Christ Hospital; aged 64; died in January, of cerebral hemorrhage.

Lewis Bama ⊕ New York; Columbia University College of Physicians and Surgeons, New York, 1903; aged 60; died suddenly, March 26, of heart disease, while attending a patient.

George W. Davis, Belmont, Ohio; Ohio Medical University, Columbus, 1903; aged 58; died, February 17, at the home of his sister in Sunbury, of intestinal obstruction and peritonitis.

Milburn N. Nickell, Sharpsburg, Ky.; University of Louisville School of Medicine, 1911; aged 41; died, March 22, at the Mary Chiles Hospital, Mount Sterling, of spinal meningitis.

Franklin Johnson Owry, Cincinnati; Eclectic Medical Institute, Cincinnati, 1896; veteran of the Spanish-American and World wars; aged 58; died, April 9, of arteriosclerosis.

James Wilson Robinson ⊕ Waltonville, Ill.; Barnes Medical College, St. Louis, 1897; aged 54; died, March 24, at the Mount Vernon (Ill.) Hospital, of cerebrospinal meningitis.

Joseph A. Thompson, Homer, Mich.; Michigan College of Medicine and Surgery, 1897; aged 66; died, March 26, at the Sheldon Memorial Hospital, Albion, of acute nephritis.

Franklin C. Hunter, Wapakoneta, Ohio; Eclectic Medical Institute, Cincinnati, 1872; formerly county coroner; aged 82; died, April 1, of uremia, following a fractured hip.

John Bartholomew Williams, Anderson, Ind.; Physio-Medical College of Indiana, Indianapolis, 1885; aged 70; died, April 2, of chronic valvular heart disease.

Alexander Pietrzykowski ⊕ Chicago; College of Medicine and Surgery (Physio-Medical), Chicago, 1901; aged 56; died, March 11, of heart disease and nephritis.

Charles William Cleveland, St. Charles, Ill.; Medical Department of the University of Illinois, Chicago, 1903; aged 45; died, February 28, of bronchopneumonia.

Ferdinand E. Riva ⊕ Milltown, N. J.; University of Pennsylvania School of Medicine, Philadelphia, 1886; aged 65; died, March 28, of chronic myocarditis.

William Henry Case, Tulsa, Okla.; Medico-Chirurgical College of Kansas City, Mo., 1904; aged 64; died suddenly, March 18, of cerebral hemorrhage.

Anthony J. Rusch, Chicago; Chicago Medical School, 1921; aged about 33; died in March, of acute hemorrhagic pancreatitis and empyema of the gallbladder.

Thomas Samuel Lorton, Fort Worth, Texas; Medical Department of Washington University, St. Louis, 1910; aged 41; died, March 13, of heart disease.

James R. Montgomery ⊕ Grand Rapids, Mich.; University of Michigan Medical School, Ann Arbor, 1891; aged 70; died in March, of heart disease.

William Houston Quillian, Thomaston, Ga.; Atlanta College of Physicians and Surgeons, 1907; aged 49; died, March 16, of a self-inflicted bullet wound.

Stephen Douglas Few, Parsons, W. Va.; University of Maryland School of Medicine, Baltimore, 1892; aged 68; died, January 23, of pneumonia.

James H. Johnson, Connersville, Ind.; Chicago Homeopathic Medical College, 1895; aged 57; died, February 15, of cerebral hemorrhage.

Donald Robert Cameron, Oshawa, Ont., Canada; Queen's University Faculty of Medicine, Kingston, 1909; aged 50; died suddenly, January 4.

Jackson Hoover, Grand Valley, Pa.; Eclectic Medical Institute, Cincinnati, 1880; Civil War veteran; aged 84; died, Dec. 23, 1928.

Madison Mills White, Denison, Texas; St. Louis College of Physicians and Surgeons, 1901; aged 64; died, February 10, of nephritis.

Franklin S. Miles, Fort Myers, Fla.; Rush Medical College, Chicago, 1874; Chicago Medical College, 1875; aged 84; died, April 1.

Malcolm Ross Slack, Farnham, Que., Canada; McGill University Faculty of Medicine, Montreal, 1903; died, Dec. 21, 1928.

Joseph Frank Dvořak, Fairfax, Iowa; Rush Medical College, Chicago, 1899; aged 52; died, April 4, of myocarditis.

James Harvey Jenkins, Thomasville, Ga.; St. Louis Medical College, 1878; aged 82; died, January 15, of pneumonia.

John W. Botkin, Jacksonville, Ill. (licensed, Illinois, 1878); aged 84; died, March 13, of endocarditis and pneumonia.

Clarence Alfred Krogh ⊕ Chicago; Rush Medical College, Chicago, 1904; aged 54; died, April 2, of chronic nephritis.

Henry J. Schlagenhauf, St. Louis; St. Louis Medical College, 1890; aged 64; died, February 20, of heart disease.

Bureau of Investigation

WILLIAM HELD

His Remedies for Epilepsy, Rejuvenation, "Gassing," Shell Shock and What Have You

William Held, M.D., of Chicago, according to the records of the American Medical Association was born in Austria in 1871 and holds a diploma from the Jenner Medical College (which went out of existence in 1917) for 1902. He was licensed to practice medicine in Illinois the same year. He is not a member of his local medical society nor, of course, of the American Medical Association.

Practically nothing was heard of Dr. Held until the spring of 1916, at the time the World War was at its height. Then he seems to have obtained his first publicity in Mr. Hearst's Chicago *Examiner* of April 1—suggestive date! According to the item in the *Examiner*, Dr. Held had discovered a substitute for skin-grafting in "skin-dusting." Two days later the same paper broke with an article dealing with what was, apparently, Held's first adventure into the field of nostrum exploitation—his alleged serum for the cure of epilepsy: "Serum Robs Epilepsy of Its Horrors, Says Dr. Held."

There was, then, a lull of a few months, but on October 13 the *Examiner* again gave Dr. Held a piece of preliminary publicity, under the heading, "Epilepsy Cure to Be Shown on 100 Patients." This item was the forerunner of an article that appeared the next day (October 14) in the same paper. It appears that Held was on the program of one of the "twilight-zone" organizations, the "Chicago Society of Medical Research," and, apparently, was getting too much publicity for some of the other active members to stomach, for the Chicago *Examiner* headed the article on Held, "Doctors Halt Epileptic Test on 2 Rabbits." Held was shut off because Ottofy of St. Louis had a "cancer serum," Baldwin of Kalamazoo had a "prism cure" for goiter and diabetes, and Rogers of Chicago had his "Auto-Hemic Serum"—all of them anxious to demonstrate.

In 1917 the *Examiner* again gave Held a piece of publicity under date of November 6, with the heading, "Chicago Doctor Finds Anti-Epilepsy Serum"—a statement which could hardly, in Dr. Held's case, qualify as fresh news!

On April 30, 1918, Held got some publicity when he wired President Wilson that he had just completed a two-months experiment and discovered an antidote for "gassing." As the paper stated:

> "'The discovery I have made will replenish the red blood corpuscles which are destroyed by the gas attacks of the Hun,' said Dr. Held today."

In 1919 the Chicago *Herald-Examiner* for February 8 carried an article on William Held headed, "Doctor Claims Serum Will Cure Shell Shock," while the Chicago *Daily News* for August 25 of the same year recorded that Held was going to Europe to "pursue medical research" and headed the article, "Vaccine to Cure Epilepsy."

In the latter part of 1922 Dr. Held got a feature write-up by an NEA Service Writer. At this time Held was working in the "rejuvenation" field. The article carried a picture of Held holding a laboratory monkey and stating that he (Held) had drawn from chimpanzees "an elixir of youth," which, when injected into the aged, resulted in rejuvenation—or, as the heading put it: "Eighty Frisks Like Twenty After Doc Pumps Anti-Age Serum Into 'Em."

During the months of October and November, 1922, Held got much publicity based on an address said to have been given at an "epilepsy clinic" at the Illinois Post-Graduate Medical School.

In 1923 the chimpanzee story appeared again in various papers, and the New York City *Telegram* of July 12, that year, printed an alleged interview with Dr. Held, who was just sailing for Berlin and who is said to have told the reporter that he was rejuvenating old people with his "Cholin Splitter." When Held returned, both the New York *World* and the New York *Mail* for September 28, 1923, printed interviews with Held the gist of which may be indicated by the heading: "Sees Man Mere Infant at 100 by Freeing System of Cholin." In 1924 there appeared another feature story by an NEA Service Writer, quoting Held as stating that "Glands deep within the bodies of Leopold and Loeb made them capable of the murder of Robert Franks."

By 1927 Held had joined those publicity seekers who have found a cheap way to notoriety by charging that aluminum pots, pans and kettles are the cause of cancer!

To-day Dr. Held is obtaining some more publicity by appearing for the "anti-vivisectionists" in the hearings on the so-called Anti-Vivisection Bill now before the Illinois legislature. In the newspaper reports Held is described as "Professor of Medicine, well known for his treatment of epilepsy."

While the brief sketch just given of Held's unpaid publicity gives a general idea of this man's professional activities during the past thirteen years, it does not, by any means, give all of them. Much could be written regarding Held's paid advertising: first, of his alleged serum for epilepsy; later, of his home-remedy substitute for the serum, which he called "Antiepilepticoid"; still later, of the half-page newspaper advertisements in Chicago papers in which he was described as the "Director" of the imposingly named "International Institute Laboratory and Clinic, Inc.," an organization that seems to have been known earlier as the "International Institute" and "International Health Institute." Space might also be given to Held's "Epileptographic Society of America" and his "United States Health League," finally coming down to his latest panacea, "Iodoheld."

From Dr. Held's advertising, it appears that Iodoheld is an "Iodized, Aqueous Rare Earth Metal Solution." The "rare earth" in this connection, seems to be cerium. According to Held, "Iodoheld":

> ". . . HAS DEMONSTRATED ITS EFFICIENCY TO SUCCESSFULLY ANNIHILATE DISEASE-PRODUCING MICRO-ORGANISM IN THE BODY, ELIMINATE THEIR PRODUCTS, HEAL INFLAMMATION, DETOXINATE AND ANTISEPTICIZE TISSUES AND BODY FLUIDS, STIMULATE HEALTHY GRANULATION OF PATHOLOGICALLY CHANGED ORGANS, REDUCE FEVER BY COMBATING ITS CAUSE AND DESTROY TUMORS."

As Held says elsewhere in his ballyhoo material, "Iodoheld has proven bewilderingly effective"; "bewilderingly" seems justified! Not that Iodoheld is the only preparation that the doctor has for sale; he has, it appears, certain "gland products" ("ask for literature"). Dr. Held's price list states that "one month's glandular material, prepared according to patient's history, $16." His Iodoheld comes in sealed glass vials, each containing 1½ c.c.; price $2.50. From the advertising booklet, it appears that Iodoheld has not only performed marvels in Europe but, in America, has cured infantile paralysis, prostatitis, pericarditis, epidydymitis, ovarian tumor, eczema, and, most marvelous of all, the common cold!

Then, Dr. Held also has his product, "Hormogene," which is "administered in the male for gonadal deficiency" and to "the female after surgical exposure of the arteries supplying the organs to be treated." One treatment comes at $15! There is also Dr. Held's "Calcrefer," which is said to be a "Calcium creosote iron compound for intravenous administration."

From what has been written, it should not be difficult to evaluate the probable scientific worth of Dr. Held's statements relative to the cancer-producing potentialities of aluminum cooking ware and his opinions on the lack of any need for animal experimentation.

Psychologic Aspect of Disease.—In the care and treatment of any disease, either physical or mental, the psychologic aspect should be carefully considered. Every physician should know just how a patient feels toward himself and his trouble. Since the practice of medicine has been divided into the many specialties, there is a tendency to lose sight of the patient, especially his psychologic make-up, and to treat only the diseased part involved. It is a very common occurrence for the internist to say to his patient who has consulted him for an abdominal pain, "You had better see a surgeon regarding this trouble" or "An operation will most likely have to be performed." If the trouble is purely psychogenic, you have only helped the patient to establish, in his mind, a fixed pathological condition where none exists and hindered materially the prognosis of an early recovery.—Miller, C. S.: The Consideration of the Psychic Factors in Physical Disease, *New Orleans M. & S. J.*, March, 1929.

Correspondence

HISTORY OF PERIARTERIAL SYMPATHECTOMY

To the Editor:—In a recent article by Dr. C. F. McClintic, "Treatment of Trophic Ulcers by Alcoholic Injection of the Blood Vessels" (The Journal, March 23), certain errors appear relative to the history of periarterial sympathectomy. Corrections are in order as priority is involved which, if it is to be accorded, should be accorded as justly as possible. The article states that in 1906 Jaboulay endeavored to produce vasodilatation in the lower extremity by denuding the femoral artery. He not only endeavored but succeeded and observed approximately the same effects that are currently reported today. Furthermore, Jaboulay was performing this and other operations on the sympathetic prior to 1898 (*Lyon chirurgical*). The exact dates I do not have at hand, but Leopold Ollier was still living (died in 1900) and his objections and comments were strangely similar to those that were to confront Leriche twenty years later.

It is further stated that Leriche rediscovered the course of the arterial nerves three years ago, after Lister's demonstration had been completely forgotten for seventy years. In reality, Jaboulay had a perfectly clear idea of what he was trying to do thirty years ago. And this is not surprising, as Ranvier and others had already demonstrated the exactitude of Lister's conception by anatomic studies.

From reading Jaboulay's original reports and from making inquiries on the spot where Jaboulay did his work, I have never discovered in what essential the so-called Leriche operation was in any way original in conception. If Jaboulay's technic was modified (which is not at all certain), the operation still could scarcely be called new.

As Jaboulay was the first to denude an artery, clearly with the object of interrupting the nerves and of producing vasomotor effects, certainly he should be credited with the invention of periarterial sympathectomy. One may add that in view of his other numerous efforts to produce therapeutic effects by operations on the sympathetic he should be regarded as the founder of the surgery of the vegetative nervous system (*Cliniques chirurgicales*, 1900-1902).

To Leriche particularly and to others of the Lyons school (Bonnet, Cotte, Latarjet, Rochet, Santy and Tixier) belongs the credit of preserving and continuing the prematurely arrested work of Jaboulay.

Albert F. De Groat, M.D., Fayetteville, Ark.

[Note.—The letter of Dr. De Groat was referred to Dr. Clifton F. McClintic, who writes:]

To the Editor:—I have read with interest the comments relative to the history of periarterial sympathectomy. I concede priority to Jaboulay, but to the casual observer of the work being done on the surgery of the sympathetic nervous system in general it must be evident that Leriche has done more toward its development than any one else. It was to the surgery of the sympathetic in general more than to periarteriorrhaphy in particular that I had reference in these particular remarks in my article.

Neither do I deny the correctness of Jaboulay's reasons for his procedure in interrupting the vasomotor nerves, and I mentioned in my article how he did this. However, the exact course of the vasoconstrictor and vasodilator nerves from their origin in the spinal cord to their terminations with their relays were not known to Jaboulay, and I do not accept the course of these fibers with their relays as given by Leriche (as quoted by Ranson, The Journal, June 19, 1926, p. 1889). Leriche is of the opinion that the vasoconstrictor fibers relay in the ganglions of the sympathetic trunks, whereas I hold that they relay in the intrinsic ganglions of the vascular axis. Nor do I agree with Leriche that the vasoconstrictor fibers to the extremities run with the peripheral nerves. I hold that they run on the arteries as a periarterial plexus from their origin at the intrinsic vascular ganglion to the termination of the vessel which they surround and supply.

Recent clinical work indicates that the vasodilator nerves run with the peripheral nerves to the extremities, not as component fibers of these nerves but as perineural plexuses similar to the periarterial plexuses, the plexus being in the peripheral nerve sheath.

I am aware of the extent of Jaboulay's work on the sympathetic in the treatment of conditions other than those due to vasomotor spasm, and were I writing a history of sympathetic surgery I would give him a high place among the pioneers in this field. In my article I was more especially interested in periarterial sympathectomy because I feel that with alcoholic injection the same effect is being produced in a more permanent way on the sympathetic nerves that is secured by stripping the artery.

My conception of the distribution of the vasomotor fibers from the spinal cord to their terminations on the blood vessel is that the constrictor fibers relay on the ganglion cells on the abdominal aorta and terminate along the artery as a plexus, whereas the dilator fibers relay in the sympathetic chain ganglions and then run with the peripheral nerves and terminate in simple endings on the vessels. This conception differs from that of Leriche, as can be seen by comparing it with that in the article referred to.

C. F. McClintic, M.D., Detroit.

NOUNS AS ADJECTIVES

To the Editor:—About a year ago and again within a few weeks I have seen letters in The Journal protesting against the use of nouns as adjectives. The example given in each case, if I remember rightly, was "lung carcinoma."

This expression, however, is good English usage—and old English usage as well. On page 26 of Baskervill and Sewell's English Grammar this use is discussed under the heading "Nouns Used as Descriptive Terms." "Sometimes a noun is attached to another noun to add to its meaning, or to describe it; for example 'a *family* quarrel,' 'a *New York* bank,' 'the *State Bank Tax* bill,' 'a *morning* walk.'

"It is evident that these approach near to the function of adjectives. But it is better to consider them as nouns, for these reasons: they do not give up their identity as nouns; they do not express quality; they cannot be compared, as descriptive adjectives are.

"They are more like the possessive noun, which belongs to another word but is still a noun. They may be regarded as elliptical expressions, meaning a walk *in the morning*, a bank *in New York*, a bill *as to tax on the banks*, etc."

Weseen, in his recent Dictionary of English Grammar, calls these words "substantival adjuncts"—words that were originally or primarily nouns now used as adjectives, as "paper cover," "railway problem," "commerce commission." Jespersen says, "The development and free use of such substantival adjuncts forms one of the most characteristic traits of present-day English."

While this form may sometimes be decried for the sake of euphony, in the majority of cases it is much more concise and smooth. At least let us not condemn it on the ground that it isn't correct.

Mary C. Johnstone, Rochester, Minn.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

ADMINISTRATION OF SODIUM SALICYLATE

To the Editor:—Kindly tell me whether sodium salicylate in ordinary medicinal doses given for the conditions in which it is usually prescribed should be given near meals, or when the stomach is comparatively empty. Please omit name.

M.D., Iowa.

ANSWER.—Sodium salicylate is usually given with an equal or, better, double quantity of sodium bicarbonate so as to antagonize, as much as possible, the precipitation of salicylic acid by the gastric hydrochloric acid. It is preferably administered in a liberal amount of carbonated water and on an empty stomach, so as to hasten its expulsion from the stomach as much as possible.

EFFECTS OF PRESSURE COOKING — SAFE SHOE DYES

To the Editor:—1. How does the rapid action of a pressure cooker influence food as to its palatableness, and is it any more easily digested and assimilated? Is it better than ordinary food as to the vitamin content? Has any experiment been made with animals or children as to their growth when fed exclusively on pressure cooked foods? 2. Can you give me the names of any shoe dyes which do not contain poison? Please omit name.

M.D., Colorado.

ANSWER.—1. Foods differ in their palatability when cooked in a pressure cooker. Some that take long to cook by other methods, for example, beets and old carrots and tough meat, are good prepared in the pressure cooker and there is a worth-while saving of time in such preparation. The so-called strong juiced vegetables—cabbage, cauliflower, brussels sprouts—are ruined in flavor and color by pressure cooking, for the acid retained in the vessel causes decomposition of the sulphur compounds. Green vegetables—peas, green beans, spinach—are spoiled in color by the acids retained. The vitamin work which has been done extensively on commercial canned foods probably applies also to pressure cooked foods. Vitamins A and B seem to be practically unchanged and vitamin C only partially destroyed. We do not know of any experiments made with animals or children fed exclusively on pressure cooked foods.

2. An order from the Chicago Department of Health to manufacturers of shoe polishes, issued March 3, 1927, said:

> For your information, the following is a list of solvents that have been submitted to the Department of Health, investigated and found to be satisfactory, as far as their toxic characteristics are concerned, for use as solvents in the manufacture of shoe dyes:
>
> Alcohol.
> Acetone.
> Furfural
> Ortho-dichlorbenzene.

(Shoe polishes containing poisonous substances, such as nitrobenzene or nitro-aniline, are debarred by a previous ruling of the Chicago Department of Health.)

The following shoe dyes have been analyzed and are in use in Chicago in accordance with this recommendation:

> Dyanshine, manufactured by Barton.
> Cinderella, manufactured by Ficks Shoe Polish Company.
> Black Rapid, manufactured by Griffin Manufacturing Company.
> Japanese, manufactured by Hathaway & Son.
> Dura-Shine, manufactured by Rit Products Corporation.
> Tintine, manufactured by Sanderson-Tintine Company.
> Zet, manufactured by Sunbeam Chemical Company.

COUMARIN AND TOBACCO

To the Editor:—The U. S. Dispensatory, Sixteenth Edition, page 1841, said: "The leaves of the *Liatris odoratissima* are very largely employed in the Southern United States to flavor tobacco."

Years ago I had personal knowledge of the truth of that statement, even as it involved certain commercial brands of smoking tobacco then on the market. Is this weed so used today? If so, is it an ingredient of the protean cigaret?

Dr. Laurence Johnson, in "A Manual of the Medical Botany of North America" (Wood's Medical Library series, published years ago), discussed this weed, commonly called vanilla plant or deer's tongue, as one of the coumarin-bearers used in adulterating tobacco; and he said of it: "The deleterious effects produced by smoking tobacco thus adulterated are much greater than those produced by the consumption of pure tobacco in even greater excess. The inhalation of a few whiffs of the smoke from a cigaret made of this adulterated material, provided the inhalations are made in quick succession, produces a train of cerebral sensations of an intoxicating character as much different from any effect of tobacco alone as could be imagined; and prolonged use of such cigarets invariably produces great derangement of the digestive organs, very little resembling the dyspepsia induced by excessive use of tobacco, together with cardiac symptoms often of a distressing character.

"The habit of smoking coumarin in this form appears to become more inveterate, more exacting, than that of the use of tobacco alone, so that the unhappy victim—for such he should be called—is never comfortable except when indulging."

Numerous other plants, including melilotus and tonka, contain more or less coumarin, commonly described as a narcotic which produces cerebral intoxication, depresses the heart, and in large doses paralyzes it.

Is there any recent research on the action of coumarin-bearing plants, and are they used in commercial tobacco products? I know it is denied by certain interested parties; but what are the facts?

THOMAS S. BLAIR, M.D., Santa Ana, Calif.

ANSWER.—From the literature available in the A. M. A. libraries, it cannot be ascertained whether or not coumarin plants are used in making smoking tobacco, but it is well known that vanillin-bearing plants, such as tonka, among other things, has been used for flavoring tobacco. It is quite likely, on account of a similarity of odor and taste of coumarin and vanilla, that the former might be substituted for vanilla plant. Simons (Die Cumarin, Stuttgart, Ferdinand Enke, 1916, p. 69) states that coumarin has been used to flavor tobacco.

No direct reference to deleterious effects from the use of coumarin is found, but Kober and Hayhurst (Industrial Health, p. 233) say:

> But there are many other substances which in specially susceptible individuals may produce local and systemic effects. This is true of coumarine, the odoriferous principle of tonka bean, woodruff, sweet clover, etc.; myristicin from the oil of nutmegs and cloves, safrol, found in the oil of sassafras, and other essential oils. There are also instances on record in which the exhalation of flowers and oranges, etc., have produced toxic and in some instances, fatal symptoms.

In concluding his comments, the chemist to whom this inquiry was referred stated: "From my own experience with essential oils, extending over a period of four years, I have not encountered deleterious effects from inhaling any odors of essential oils, among them vanilla and coumarin."

RELIEF OF EARACHE BY PHENOL-GLYCERIN MIXTURE

To the Editor:—Will you be good enough to send to me a formula for earache. I have in mind a prescription that will immediately and continuously give relief for both the child and the adult. Please omit name.

M.D., Pennsylvania.

ANSWER.—Drops for earache that "immediately and continuously" give relief are not available, nor are they desirable, as they would mask the symptoms and permit middle ear suppuration to go on to mastoiditis with all its dangers and sequelae. Instillation, as hot as can be borne, of glycerin with 5 per cent of phenol is usually adequate to relieve pain of acute nonsuppurative middle ear inflammation. If this does not suffice, prolonged irrigation of the ear canal with water as hot as can be borne, quarts of it in the course of fifteen or twenty minutes, usually gives a great deal of relief, which often may be continued by hot phenol-glycerin instilled after the ear has been gently wiped dry with cotton applicators. A small hot water bag, or other application of dry heat (including light rays) is a useful addition to this treatment. When these measures fail to give satisfactory relief, the probabilities are that incision of the drumhead is required.

DERMATITIS FROM HANDLING UPHOLSTERERS' GIMPS

To the Editor:—I have a number of patients who are workers on upholsterers' gimps—weavers who are troubled with a skin irritation of the hands. It does not resemble eczema. Have you any literature or other knowledge to show that it may be due to handling the material?

JOHN A. FERGUSON, M.D., Brooklyn.

ANSWER.—The material of the gimp concerned appears to be nitrocellulose rayon on a cotton base. So little exact information is provided as to the nature of the lesion and the precise process which has led to irritation that the answer must be general. In the making of nitrocellulose artificial silk or rayon, or, as it is sometimes termed, Chardonnet artificial silk, numerous chemical hazards are potentially present. When these products are well made, none of the irritant chemicals should be carried over to the stage of weaving. After nitrocellulose rayon has been spun and exists in the form of hanks, it is necessary to denitrate the nitrated cellulose in order to get away from the high flammability, explosibility and destructibility of the product. This denitration is carried out in a solution of alkaline hydrosulphide. Sodium, calcium or ammonium sulphide may be employed for this purpose. Theoretically, all of the nitric groups are removed; practically, this may not be true.

After denitration, Chardonnet artificial silk may be bleached with chlorinated lime. In dyeing, basic coloring matters are

used, some of which may themselves serve as irritants. Theoretically, at any rate, careless manufacturing methods of making Chardonnet silk may carry skin irritants over to the weaving stage. Such tremendous quantities of rayon are now used in the manufacture of all sorts of fabrics and yarns that records of skin irritation would have been made long before now if such cases were at all frequent. Mechanical irritation from continuous handling of weaving materials may give rise to a low-grade inflammation of the skin. If the black component of this submitted fabric has been colored with any of the dyes giving rise to diamines, this dye may be regarded as a likely source of irritation.

In order to determine precisely the causative factor of this dermatosis, it would be desirable to substitute for the Chardonnet artificial silk other types, such as cuprammonium or acetate artificial silks, and likewise to determine the presence or absence of skin irritation when colors other than black or brown are exclusively employed.

SODIUM CACODYLATE IN ANEMIA

To the Editor:—Will you kindly give me your opinion on the value of sodium cacodylate (intravenously) in the treatment of anemia. Has it, for instance, marked value over the oral administration of arsenic and other tonics? JAMES WATSON, M.D., Humacao, Porto Rico.

ANSWER.—Sodium cacodylate is slowly decomposed in the tissues to a trivalent arsenic compound. The action therefore is more gradual than with inorganic forms of arsenic. It has no other advantages over inorganic arsenic compounds. A dose given once daily or once every two or three days suffices for fairly continuous action and is less likely to affect the gastrointestinal tract unfavorably. Thus it is indicated in a case of anemia in which solution of potassium arsenite or some other inorganic arsenic preparation is not well borne. It may be given intramuscularly. Its intravenous administration is not called for.

GLANDULAR DISTURBANCES WITH OBESITY AND MENSTRUAL DISORDERS

To the Editor:—A woman, aged 32, 5 feet 8 inches (173 cm.) in height, of 267 pounds (121 Kg.) weight, has had amenorrhea for about six months and has had menorrhagia for about six months alternatingly. She has taken thyroid extract, but that made her nervous. Headaches occur at times, but these are not prominent symptoms. Her main complaints are obesity and menstrual disorders. My diagnosis is hypopituitarism and I plan on giving her pituitary extract. Will you kindly advise me as to treatment. Please omit name. M.D., Georgia.

ANSWER.—The outlook for an extensive reduction in weight and regulation of the menstrual flow is not bright. Cases like these which are due to disturbances in a number of glands of internal secretion are difficult to treat successfully. Pituitary preparations frequently cause a reduction in weight, especially when combined with thyroid preparation, but the amount of weight lost is not considerable. If the weight can be reduced, the prognosis for the return of normal menstruation is more favorable than otherwise. There is little evidence that ovarian preparations are valuable in these conditions. Small doses of the roentgen ray may stimulate the ovaries during the periods of amenorrhea, but this form of therapy is still in the experimental stage and the treatments should be given by an expert radiologist assisted by a gynecologist.

VENOUS ENGORGEMENT AND COAGULATION OF BLOOD IN PNEUMONIA

To the Editor:—I would like you to discuss a problem which arose from my experience in a case of lobar pneumonia. The patient was 42 years of age. On the seventh day the nurse told me that she had seen black spots on the chest of the patient. I then observed on the right side of the chest (diseased side) fully distended dark looking veins. I then tried venesection on two veins of the arm but obtained only 120 cc., as the blood coagulated too fast. The patient died on the next morning in spite of all heart stimulants. The undertaker reported to me later of his own accord that it was a remarkable case, as even the blood in the axillary vein was coagulated. All this makes it probable that the patient really died from a tired heart caused by increased coagulability and increased viscosity of the blood. Would the intravenous injection of sodium citrate have done any good in such a case? What other measures would you suggest to decrease the coagulability and viscosity of the blood in a similar case? Please omit name. M.D., Indiana.

ANSWER.—The phenomena were due in part to the venous engorgement so frequently seen in pneumonia, and in part to what is probably an actual increase in viscosity and coagulability, of which relatively little is known. Certainly, too little is known to justify any active intervention. Sodium citrate intravenously would have been of no benefit and might have done harm. The one thing which might have helped, and which would have been of other value at the same time, without any possibility of harm, would have been the administration of oxygen. If this is given through a catheter passed through the nostrils into the nasopharynx, the patient will receive enough to be of some value—just how much value is questionable. It will not affect the pneumonia but may afford some temporary assistance while nature is attempting to restore conditions to a physiologic normal.

CALCIFICATION OF ARTERIES

To the Editor:—I have under observation a man, aged 55, in whom accidentally definite and clear arteries were seen on roentgen examination. The blood pressure is normal, 142 systolic and 82 diastolic, but he complains of indefinite pains, which he attributes to his hardened and calcified arteries. Are arteries commonly visible on a roentgenogram? What is the percentage in the average run of cases? Is the pain associated with the atheromatous vessel wall changes? What can be done to relieve the pain? To prevent further change? Please use initials only.

M.D., Ohio.

ANSWER.—Arteries are always visible roentgenographically when a certain stage of calcification is present. Such calcification may show early in life or it might come late. Percentage figures cannot be given for the numbers showing changes at the various ages. There are no symptoms that are due to the calcification per se. Nothing definite is known as to what causes calcification, and there is no known way of preventing further change. There is no treatment.

ETIOLOGY OF YELLOW FEVER

To the Editor:—The last year I have been interested in the question as to the etiology of yellow fever. For some years past we have been taught to believe that *Leptospira icteroides*, as described by Noguchi in 1918, was really the true cause and that the vaccine produced from this organism or by it and the serum likewise were prophylactic and curative in part. The last year and recently again my attention has been called to a paper read by Agremonte of the Reed Commission, who reports that further investigation has "proved" that the organism as described by Noguchi is really not the real cause of the condition, and that both the vaccine and serum as advised by Noguchi are both valueless as to their specificity. Can you tell me just what the present belief is regarding this germ as the cause of yellow fever and whether therefore there is at present a satisfactory vaccine or serum for use in the condition?

GEORGE DALLAS HENDERSON, M.D., Holyoke, Mass.

ANSWER.—The cause of yellow fever once more appears to be an unsolved problem. The African cases do not yield Noguchi's *Leptospira icteroides;* they yield a filtrable virus which is easily transmissible to monkeys. South American yellow fever consequently must be restudied from this new point of view, and where future investigations ultimately will leave the leptospira that Noguchi isolated from yellow fever patients in South America and Mexico cannot be foretold.

POSSIBLE ALLERGIC MIGRAINE

To the Editor:—Kindly suggest the measures for relief of severe pain in the temporal region in a case diagnosed as migraine. The possibility of food allergy causing cerebral edema has been suggested on account of the history of frequent gastric upsets elicited from the patient. Please omit my name. M.D., West Virginia.

ANSWER.—If a definite allergy can be established, something can be accomplished by proper dietary regulation or possibly by desensitization with specific or nonspecific proteins. If the paroxysms of migraine are so severe and frequent as to be incapacitating, relief can often be secured through the administration of cannabis, which should be given in doses just short of producing physiologic effects; this can be determined by giving a small dose and increasing gradually until the effects are observed; the dose is then reduced to three fifths and is continued at that level.

DANGER OF CRUDE COAL TAR IN OINTMENT

To the Editor:—Kindly advise me whether any harmful effect might be anticipated from the use of a crude coal tar ointment on an obstinate eczema over a period of many years. Is there any probability of a malignant change or other ill effect? Please omit my name.

M.D., South Carolina.

ANSWER.—The probability of a malignant change following the prolonged use of a crude coal tar ointment seems to be remote. This product has been used therapeutically for at least twenty years and has not been found to produce harmful results when used over a moderate period of time; that is, for only a part of a patient's lifetime. What the result would be when used constantly year in and year out is problematic. It should be remembered that in experimental production of cancer in animals tar is rubbed repeatedly into the skin.

ASTHMA

To the Editor:—Would you kindly outline the treatment of asthma with especial reference to ephedrine therapy, and particularly as it applies to the young? Please omit name.

M.D., Philadelphia.

ANSWER.—As asthma is a syndrome, rather than a disease, caused by a great variety of different influences, the first essential is to diagnose the cause, which generally belongs to one of two classes, allergy or infection. In children, infected tonsils or adenoids are frequently responsible for the condition. If sensitization to foreign protein is discovered, this should be dealt with either by preventing further exposure to it or, when this is impossible, by appropriate desensitization treatment. Ephedrine is merely a symptom remedy, though a useful one in a considerable proportion of cases. It may safely be given as ephedrine hydrochloride or ephedrine sulphate in doses of from 1 to 2 mg. a year, though as much as 8 mg. has been given to children under 1 year of age, and twice as much to older children.

RELATIONSHIP OF COCAINE TO MORPHINE POISONING

To the Editor:—A morphine habitué here says that cocaine is a sure antidote for morphine poisoning or that from any other of the opiates. He says that it will overcome the effects of the morphine poisoning in from five to ten minutes; in less time if used intravenously. He says that all the "dopesters" know that to be a fact. I have never seen it recommended as an antidote for opium poisoning, and I ask you whether it is known to the medical profession as such an antidote.

J. W. YANKEY, M.D., Mankato, Kan.

ANSWER.—Sollmann (Manual of Pharmacology, ed. 3, p. 301) states that there is a general antagonism between morphine and small doses of cocaine, especially as regards the effects on temperature and metabolism. Larger doses are synergistic, and as the susceptibility to cocaine is variable, the hypodermic dose of 10 mg. should not be exceeded. Solis-Cohen and Githens (Pharmacotherapeutics, 1928, p. 1667) state that cocaine is an antagonist of morphine but, like atropine, only as regards the effects of small doses.

The statement that "dopesters" generally know the antidotal power of cocaine for morphine poisoning is in part true. For moderate depression from morphine, cocaine is a fairly effective antidote. In fact, morphinists are sometimes found who spend most of their time antidoting excessive morphine effects by cocaine and then, in turn, antidoting the excessive cocaine effects by morphine (Joël and Fränkel: Der Cocainismus; Maier, H. W.: Der Kokainismus). The antidotal actions referred to by our correspondent are of the nature just mentioned and must not be construed to mean that, in accidental poisoning by morphine to a stage of coma and impending paralysis of the medullary centers, cocaine is the drug of choice. Cocaine, like atropine, is of doubtful value in profound depression from morphine. Caffeine is generally thought to be better and safer, but final reliance is to be put on symptomatic treatment, resort being had, if necessary, to artificial respiration.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

AMERICAN BOARD OF OPHTHALMIC EXAMINERS: Portland, Ore., July 8, and Philadelphia, Oct. 21, 1929. Sec., Dr. William H. Wilder, 122 South Michigan Avenue, Chicago.

ARKANSAS—Homeopathic: Little Rock, May 14, 1929. Sec., Dr. Allison A. Pringle, Homeopathic Board of Medical Examiners, Eureka Springs, Ark.

ARKANSAS: Little Rock, May 14-15, 1929. Sec., Dr. James W. Walker, Fayetteville, Ark.

CALIFORNIA—Reciprocity: San Francisco and Los Angeles, June 12, 1929. Sec., Dr. Charles B. Pinkham, 420 State Office Bldg., Sacramento, Calif.

DELAWARE—Regular and Homeopathic: Wilmington, June 10-12, 1929. Sec., Dr. Harold B. Springer, 1013 Washington Street, Wilmington, Del.

GEORGIA: Atlanta and Augusta, June 5-7, 1929. Sec., Dr. B. T. Wise, Americus, Ga.

KENTUCKY: Louisville, June 11-13, 1929. Sec., Dr. A. T. McCormack, 532 W. Main Street, Louisville, Ky.

MARYLAND—Homeopathic: Baltimore, June 11, 1929. Sec., Dr. J. S. Garrison, 517 Old Orchard Road, Ten Hills, Baltimore, Md.

MICHIGAN: Ann Arbor, June 11-13, 1929. Sec., Dr. Guy L. Connor, 707-708 Stroh Building, Detroit, Mich.

MISSOURI: St. Louis, June 12-14, 1929. Sec., Dr. James Stewart, Capitol Building, Jefferson City, Mo.

NEBRASKA—Basic Science: Lincoln, May 14-15, 1929. Chief, Mrs. Clark Perkins, Bureau of Examining Boards, State House, Lincoln.

NEVADA: Carson City, May 6-8, 1929. Sec., Dr. Edward E. Hamer, Board of Medical Examiners, Carson City, Nev.

OHIO: Columbus, June 3-6, 1929. Sec., Dr. H. M. Platter, 85 East Gay Street, Columbus, Ohio.

Book Notices

THE FUEL OF LIFE. Experimental Studies in Normal and Diabetic Animals. By John James Rickard Macleod, M.B., LL.D., D.Sc., Professor of Physiology, University of Toronto. Louis Clark Vanuxem Foundation Lectures Delivered at Princeton University, March, 1928. Cloth. Price, $2.50. Pp. 147, with illustrations. Princeton: Princeton University Press, 1928.

This book is concerned with the question of metabolism in animals and man. It includes a review of experimental work done in the author's laboratory as well as work along similar lines done elsewhere. The experimental evidence is brought forth to support the view that fat as well as protein is converted into glycogen before being used as a fuel for combustion in the muscles, and that this is done mainly by the liver. The experimental evidence is quite varied and inclusive, tending to show that the glycogen can be derived from both proteins and fats. The facts are deduced largely from studies of the blood sugar, respiratory metabolism and nitrogen chemistry on animals with phlorhizin poison, pancreatectomy, hepatectomy and other experimental preparations. The experimental evidence tends to show the nature of the intermediary substance of carbohydrate metabolism and special significance is attached to the presence of acetaldehyde in the blood and tissues of normal animals. The final statement is that thus far it has been impossible to demonstrate that dextrose undergoes any particular change preceding its condensation to form glycogen. In general the evidence is presented in a logical and convincing fashion and the book makes interesting reading.

THE COLLOID CHEMISTRY OF PROTOPLASM. By L. V. Heilbrunn, Assistant Professor of Zoology, University of Michigan. Volume I. of Protoplasma Monographien. Herausgegeben von R. Chambers, E. Faure und anderen. Paper. Price, 19 marks. Pp. 356, with 15 illustrations. Berlin: Gebrüder Borntraeger, 1928.

This is the first of a series of protoplasm monographs sponsored by the editors of the journal *Protoplasma*. The present monograph is written in English, is printed on good paper, and is practically free from typographic error. The author uses $\mu\mu$ instead of the correct $m\mu$ as a symbol for millimicron. Probably it is permissible to classify monographs into two great groups. A monograph sometimes represents a compilation and summation of all of the important literature in a given field by an author who presents all angles of a given question in a more or less impartial manner and leaves the reader to judge for himself the relative merits of the various views that have been presented. The other type of monograph is that which is devoted throughout to an exposition and defense of the views of the author. The present volume is of the second type. It is not merely a presentation of the data which have been accumulated on the colloid chemistry of protoplasm, but rather it is the gospel of the reactions of protoplasm according to Heilbrunn. As such, it at the same time either takes on added value or loses value, depending on the point of view of the reader. It is sometimes rather difficult to determine what Heilbrunn means by "protoplasm." In discussing the viscosity of protoplasm he discusses only the viscosity of the medium in which the protoplasmic granules are suspended, i. e., the dispersion medium, and finds that this medium is only slightly more viscous than water. This is not surprising, since water is the dispersion medium of all lyophilic colloid systems, and if one could separate the micelles from the dispersion medium, one would find a different and a lower viscosity than is characteristic of the colloid system as a whole. Heilbrunn apparently believes that the centrifugal method is the only method that can yield accurate viscosity results. He objects, on the grounds of injury to the protoplasm, to experiments in which a nickel ball, 16 microns in diameter, was inserted into a mass of protoplasm and in which the movement of the nickel ball was followed as a measure of viscosity. In this instance, the apparent viscosity values did not agree with his theories. However, in the experiments of another worker an iron rod, 120 by 50 microns, was inserted into and moved about in the protoplasmic mass. This procedure yielded viscosity values of which Heilbrunn approves; no suggestion of possible injury is made.

Many pages are devoted to protoplasmic systems in which Heilbrunn's methods indicate low viscosity. Only relatively

casual mention (one page, 81-82) is given protoplasmic systems in which he admits the viscosity is high, and even here he argues that the viscosity of the dispersion medium must be low, although he cannot prove it by his technic. The author points out that merely shaking certain colloid systems greatly increases fluidity. One wonders why centrifugating is not as drastic a procedure as shaking, and whether or not his approved technic for studying viscosity may not induce fluidity changes in the material in question. In the case of the electric charge on protoplasm, Heilbrunn ignores the fact that for viscosity purposes protoplasm consists of only the dispersion medium. Here it consists of only the protoplasmic granules on which the electric charge now resides. In the osmotic pressure discussion both the granules and the dispersion medium constituted the protoplasm. Heilbrunn does not concede that studies on inanimate systems can give any valid data which can be applied to protoplasm reactions. He stresses the rôle of calcium in membrane formation without considering the rôle of calcium in interfacial tension. One wonders if he is even aware of the paper by Harkins and Zollman (*J. Am. Chem. Soc.* **48**:77, 1926) showing the interfacial tension forces as related to the ion antagonism of sodium and calcium. Heilbrunn even goes so far as to say (p. 221) that no interfacial tension (he calls it surface tension) can exist between the surrounding solution and a protoplasmic mass because "protoplasm itself has water as a dispersion medium." Accordingly, there can be no "adsorption film." One wishes he had attempted to prove this point either experimentally or by thermodynamic reasoning, for it is the crux of the whole problem. However, he makes the statement as a fact, and from this statement draws sweeping conclusions that many other investigators are working from a wrong premise.

Only a few scattered papers are noted on the reactions of living cells to low temperature. These are mainly concerned with the death of the organism. Death is not nearly so interesting as survival, so that one wishes there could have been a discussion of this phase following page 124. Heilbrunn notes (p. 146) that if the place of bivalent cations on a colloid micelle is taken by monovalent cations, "we should expect a decrease in the charge of the protoplasmic colloid with perhaps a complete neutralization of charge." Heilbrunn makes a good deal of this argument without submitting any proof of its validity. A review of the colloid literature does not reveal any instance in which the charge on a colloid is reduced to zero when monovalent cations are substituted for divalent cations. Heilbrunn throws out the work by microdissection and microinjection methods because of injury to the protoplasm and states that "sodium, potassium and ammonium ions produce a coagulation of the protoplasmic suspension in all cases where accurate data have been obtained. . . . The trivalent ions, aluminum and cerium, are extremely effective in producing a liquefaction of the protoplasm." From this he argues that living protoplasm is positively charged. One wonders whether a dehydration of a hydrated negatively charged micelle brought about by aluminum ions might not cause a "liquefaction," for certainly more water would be added to the dispersion medium, which would thus be more fluid. On page 200 he notes that there is general agreement that acid (hydrogen ions) cause a reversible flocculation. This would indicate a negative charge on the granules, which is decreased as the iso-electric point is approached. In a number of places "coagulation" appears to have been used as the equivalent of "iso-electric precipitation"; perhaps this would be justifiable provided some other term were substituted for "protein denaturization." Membrane potentials or the thermodynamic potential is given exactly thirteen lines on page 183, ending with the statement, "The results which have been obtained, although very interesting, have no very direct bearing on the colloid chemistry of protoplasm." This is perhaps the most astounding sentence in the entire volume. One wonders by what mental process the author reached such a conclusion regarding one of the basic physicochemical laws. One must either admit the importance of the physicochemical laws or else be a vitalist without reservation.

There are a number of loose statements, such as that on page 250: "This is apparently due to a decrease in the surface tension of the membrane of the cell." Of course, a "membrane" cannot have a surface tension. There can be an interfacial tension on both sides of the membrane, between the membrane and the liquid phase, and the pressure on the "membrane" can be altered, as a result of changes in the interfacial tension on either side. Heilbrunn presents a novel theory of muscle contraction based on the hypothesis that muscle fibrils are not concerned in muscle contraction, but that the contraction is brought about by a reversible coagulation—peptization of the protoplasm in which calcium ions, a thrombin-like substance, and some other substance react to form the coagulum. According to this theory, muscle contraction is closely related to blood coagulation. The chapters of the monograph cover the morphology of protoplasm, the chemistry of protoplasm, viscosity, elasticity, effects of temperature, effects of physical factors other than temperature, effect of salts, the electric charge of protoplasm, action of acids and alkalis, action of fat solvents, surface precipitation, vacuole formation, cell division and protoplasmic activity. It must not be thought from this review that the book is wholly without merit. There is much of value in it; but its chief value is in presenting in one place and in an expanded and connected form the views regarding protoplasm that the author has developed in the course of his own investigations.

ENZYME ACTIONS AND PROPERTIES. By Ernst Waldschmidt-Leitz. Translated and extended by Robert P. Walton. Cloth. Price, $4. Pp. 255, with 12 illustrations. New York: John Wiley & Sons, Inc., 1929.

This volume is divided into two sections, one general and the other special. In the general section the development of the enzyme concept is presented, together with a criticism of the more recent views of Fodor. The colloidal character of enzymes, their probable molecular weights, amphoteric character, adsorption and elution properties, specificities and general methods of producing enzyme preparations are covered in general. In the treatment of the adsorption phenomena and the activation of proenzymes, the influence of Willstädter is obvious. Enzyme kinetics are treated with care and in considerable detail, but specificity is treated too briefly. In the special section a rather lengthy discussion on esterases is followed by one on proteases. In the latter the work of American investigators on pepsin and rennin is not referred to and the author appears to lean toward the view of the identity of pepsin and "lab." As one might expect, the pancreatic enzymes are considered in more detail and particularly from the Willstädter-Waldschmidt-Leitz point of view. Unfortunately, the material is presented in a manner that does not convince one of the validity of their claims. In connection with protease action there is a good discussion on protein structure. The other subdivisions are devoted to the more modern treatment on enzymes acting by hydrolysis on carbohydrates and the groups of catalases, peroxidases and oxidases. Curiously enough, such enzyme activities as those of zymase are considered as "fermentation enzymes." The book represents a good treatment in a brief, readable form of the modern views on enzyme action. It cannot be used as a handbook but only as a guide to some of the more important original recent publications.

PRACTICE OF SURGERY, CLINICAL, DIAGNOSTIC, OPERATIVE AND POSTOPERATIVE. Edited by Dean Lewis, M.D., Sc.D., in Association with J. Shelton Horsley, M.D., E. Starr Judd, M.D., and George P. Muller, M.D., Gynaecology, Thomas S. Cullen, M.B., & Urology, Herman L. Kretschmer, M.D. Art Editor, Tom Jones, B.F.A. Volume I, Volume X and Volume XI. Leather. Price, $125 per set. Pp., various pagination, with illustrations. Hagerstown, Md.: W. F. Prior Company, Inc., 1928.

Attention has already been called to the excellent character of the monographs on bones and joints in the first volume of this work. Volume I might appropriately be designated the "Book of General Surgery." Its divisions include case histories, diagnosis, anesthesia, materials of surgery, aseptic technic, wounds, hemorrhage, shock, surgical infections, serum therapy, preoperative and postoperative care, diabetes in surgery, diet, and postoperative respiratory infections. The chapter on general anesthesia, with chloroform, ether and nitrous oxide, contains an historical outline, a discussion of the physiology of anesthesia, and the practical aspects of the subject. This chapter represents a fine piece of work. In the last few years there has been a wave of enthusiasm for spinal anesthesia, the indiscriminate use of which is decidedly dangerous, particularly in incompetent hands. The extreme reserve and caution exercised by the author of this chapter is commendable; thus, he says that "as

spinal anesthesia is admittedly less benign than local or regional anesthesia, it should not be used where the latter methods will suffice. . . . The employment of spinal anesthesia will become less frequent with the perfection and extension of local anesthesia." There is a fine review and a practical discussion of the subjects of hemorrhage and shock. The chapter dealing with the surgical infections is extensive and excellently done. There has been all too little teaching of the principles and deails of postoperative care. The intern frequently leaves his surgical service competent to do a laparotomy but grossly incompetent to handle a stormy postoperative course. The inclusion of a good teaching monograph on postoperative care, such as is found in this volume, is worthy of special comment, as are the chapters on diabetes and postoperative diet. Volumes X and XI cover gynecology. Volume X contains chapters on congenital defects, malpositions, fistula, gonorrhea, puerperal infections, sterilility, hemorrhage, the cervix and similar topics. Volume XI contains chapters on uterine diseases and tumors and ligaments, extra-uterine pregnancy, ovarian cysts and tumors, organal therapy and radium. Without exception, the chapters on gynecology are excellently written. The usual outline form is followed, which makes them useful as teaching volumes. These pages are free from the exposition of a host of obsolete and useless operative procedures, of which textbooks on gynecology in the past have had far too many. The text is well illustrated with plates of pathologic specimens and associated histologic changes and with numerous illustrations dealing with operative technic. There is an extensive bibliography at the end of each chapter. Probably the most striking features of these two volumes on gynecology are their completeness and the splendid character and excellent form of the material presented.

EPIDEMIC ENCEPHALITIS IN ASSOCIATION WITH PREGNANCY, LABOUR AND THE PUERPERIUM. By Frederick Roques, M.A., M.D., M.Chir., Obstetric and Gynæcological Registrar, the Middlesex Hospital. Cloth. Price, 15/- net. Pp. 143. Manchester: Sherratt & Hughes, 1928.

The prevalence of epidemic encephalitis in acute and chronic forms has of necessity attracted the attention of many workers, as all fields of medicine are more or less encroached on by the multiform manifestations of this protean disease. This book deals with the points of contact with obstetrics. In the literature the author has found mention of 171 cases of acute encephalitis and twenty-three of the chronic form occurring during pregnancy or the puerperium, and he adds forty cases secured from hospital records. He admits that the conclusions to some extent are disappointing, largely negative, and partly vague. In a general way, pregnancy and the puerperium do not influence the susceptibility to the disease or its course and prognosis. Labor is usually painless, and the puerperium is sometimes modified by the occurrence of urinary retention. In early pregnancy miscarriage is uncommon, but premature labor is prone to occur with infections in late pregnancy. There have been a few proved cases of transmission of the disease to the fetus. An encephalitis epidemica neonatorum exists, with symptoms observable from birth. There is no proved case of infection from mother's milk. The chronic cases complicated by pregnancy are so few that few conclusions can be drawn. It is regrettable that the author was unable to gather larger statistics.

L'ANESTHÉSIE LOCO-RÉGIONALE EN OTO-RHINO-LARYNGOLOGIE ET EN CHIRURGIE CERVICO-FACIALE. Par Georges Portmann, professeur de clinique oto-rhino-laryngologique a l'Université de Bordeaux, et Paul Leduc, anesthésiste a la clinique oto-rhino-laryngologique de l'Université de Bordeaux. Paper. Price, 50 francs. Pp. 321, with 84 illustrations. Paris: Gaston Doin & Cie, 1928.

In this work on local and regional anesthesia the authors give the procedure they have used with marked success for many years in the otolaryngologic clinic of the University of Bordeaux. They discuss the advantages and the contraindications and describe the exact technic employed in operations on the ear, nasal cavity, nasal accessory sinuses, larynx, trachea, mouth, face and neck, as well as the anesthesia for bronchoscopy and esophagoscopy. The authors give precise descriptions of the instruments employed and the manner of their application. The book contains many illustrations and is a practical thesis on the subject which it presumes to cover. Like most of the French works, it is written in a clear and concise style without the inclusion of unnecessary details.

Books Received

Books received are acknowledged in this column, and such acknowledgment must be regarded as a sufficient return for the courtesy of the sender. Selections will be made for more extensive review in the interests of our readers and as space permits. Books listed in this department are not available for lending. Any information concerning them will be supplied on request.

DIE EXPERIMENTELLE BAKTERIOLOGIE UND DIE INFEKTIONSKRANKHEITEN MIT BESONDERER BERÜCKSICHTIGUNG DER IMMUNITÄTSLEHRE. Ein Lehrbuch für Studierende, Ärzte und Medizinalbeamte. Von Dr. W. Kolle, Direktor des Staats-Institutes für experimentelle Therapie, und Dr. H. Hetsch, Professor am Staats-Institut für experimentelle Therapie in Frankfurt a. M. Band I und Band II. Seventh edition. Paper. Price, 60 marks. Pp. 1119, with illustrations. Berlin: Urban & Schwarzenberg, 1929.

Latest edition of a standard German guide to bacteriology and immunity.

NELSON LOOSE-LEAF SYSTEM. Vol. I. Preventive Medicine. Vol. II. Public Health. Prepared under the direction of the De Lamar Institute of Public Health, Columbia University. Editor-in-Chief, Haven Emerson, M.D., Professor of Public Health Administration. Cloth. Price, $20 per set. Pp. 583, with illustrations, and pp. 441. New York: Thomas Nelson & Sons, 1928.

Excellent collection in loose-leaf form of essays in the field of public health by well recognized authorities.

DISEASES OF THE THYROID GLAND. By Arthur E. Hertzler, M.D., Surgeon to the Halstead Hospital. With a chapter on Hospital Management of Goiter Patients by Victor E. Chesky, M.D., Associate Surgeon to Halstead Hospital. Second edition. Cloth. Price, $7.50. Pp. 286, with 159 illustrations. St. Louis: C. V. Mosby Company, 1929.

New edition of a popular monograph elaborating a personal surgical experience with the thyroid gland.

RECENT ADVANCES IN NEUROLOGY. By W. Russell Brain, M.A., D.M., M.R.C.P., Assistant Physician to the London Hospital, and E. B. Strauss, B.A., B.M., B.Ch., Medical Registrar to the Hospital for Epilepsy and Paralysis, Maida Vale. Cloth. Price, $3.50. Pp. 412, with 38 illustrations. Philadelphia: P. Blakiston's Son & Company, 1929.

One of a series of volumes in various fields of medicine reflecting the present status of knowledge.

THE VERTEBRAE ROENTGENOLOGICALLY CONSIDERED [INCLUDING A STUDY OF INDUSTRIAL ACCIDENT CASES]. By Arial Wellington George, M.D., Sc.D., F.A.C.R., and Ralph Davis Leonard, A.B., M.D. Volume VIII of Annals of Roentgenology: A Series of Monographic Atlases. Edited by James T. Case, M.D. Cloth. Price, $10 net. Pp. 256, with 217 illustrations. New York: Paul B. Hoeber, Inc., 1929.

New volume in this elaborate series which should cause consternation among the chiropractors.

HANDBUCH DER GEISTESKRANKHEITEN. Herausgegeben von Oswald Bumke. Band II. Teil 2: Störungen des Wollens Handelns und Sprechens. Bearbeitet von A. Bostroem, K. Birnbaum, und R. Thiele. Paper. Price, 37.40 marks. Pp. 377, with 34 illustrations. Berlin: Julius Springer, 1928.

Second volume of the Bumke "Diseases of the Nervous System" concerning disturbances of will and speech.

PROCTOLOGY: A Treatise on the Malformations, Injuries and Diseases of the Rectum, Anus and Pelvic Colon. By Frank C. Yeomans, A.B., M.D., F.A.C.S., Professor of Proctology, New York Polyclinic Medical School. Cloth. Price, $12. Pp. 661, with 421 illustrations. New York: D. Appleton & Company, 1929.

A textbook of proctology reflecting largely a large experience.

L'ORDINE dei tempi e delle forme in natura: Introduzione allo studio generale delle funzioni periodiche. Parte 1 e Parte 2. Per V. Capparelli. Paper. Price, 30 lire and 70 lire. Pp. 258 and 533, with illustrations. Bologna: Licinio Cappelli, 1929.

An Italian study of the scheme of life and its periodic functions.

LE FRATTURE DELL'ESTREMITÀ SUPERIORE DELL'OMERO. Per Dott. Gian Carlo Peracchia. Lavoro comunicato al 34° Congresso della Società Italiana di Chirurgia—Parma, 21 Ottobre 1927. Paper. Price, 25 lire. Pp. 164, with 162 illustrations. Bologna: L. Cappelli, 1929.

A thesis in Italian on fractures of the humerus.

JAHRESBERICHT RADIOLOGIE: Bibliographisches Jahresregister des Zentralblattes für die gesamte Radiologie. Herausgegeben von Dr. K. Frik. Band I: Bericht über das Jahr 1926. Paper. Price, 38.80 marks. Pp. 338. Berlin: Julius Springer, 1929.

A bibliography of contributions to radiology.

LEHRBUCH DER ENTWICKLUNG DES MENSCHEN. Von Dr. Alfred Fischel, o. Professor der Embryologie und Vorstand des embryologischen Institutes der Wiener Universität. Paper. Price, 86 marks. Pp. 822, with 668 illustrations. Vienna: Julius Springer, 1929.

Elaborate German textbook of embryology.

SEX IN CIVILIZATION. Edited by V. F. Calverton and S. D. Schmalhausen. With an introduction by Havelock Ellis. Cloth. Price, $5. Pp. 719. New York: Macaulay Company, 1929.

The most fascinating collection of essays thus far assembled on modern views of sex relationships.

THE DISEASES OF CHINA INCLUDING FORMOSA AND KOREA. (Jefferys and Maxwell). By James L. Maxwell, M.D., B.S. Second edition. Cloth. Price, $5. Pp. 530, with 176 illustrations. Shanghai, 1929.

A study of disease in China, which has all the United States has—and then some.

HERZ UND KREISLAUF BEI DER BERI-BERI-KRANKHEIT. Von Dr. W. C. Aalsmeer, und Prof. Dr. K. F. Wenchkebach. Paper. Price, 8 marks. Pp. 81, with illustrations. Berlin: Urban & Schwarzenberg, 1929.

A brief monograph from authoritative sources on heart and circulation in beriberi.

A LOST COMMANDER: FLORENCE NIGHTINGALE. By Mary Raymond Shipman Andrews. Cloth. Price, $3 net. Pp. 299, with 1 illustration. Garden City: Doubleday, Doran & Company, Inc., 1929.

Classic biography of the founder of modern nursing.

REPORTS ON BIOLOGICAL STANDARDS. II: Toxicity Tests for Novarsenobenzene (Neosalvarsan). By Florence M. Durham, J. H. Gaddum, and J. E. Marchal. Medical Research Council, Special Report Series, No. 128. Paper. Price, 9d net. Pp. 40, with 8 illustrations. London: His Majesty's Stationery Office, 1929.

DAS KOLLOIDE SILBER: Seine Darstellung und seine Verwendung in Biologie und Medizin. Von J. Voight. Band VIII: Kolloidforschung in Einzeldarstellungen. Herausgegeben von Richard Zsigmondy. Cloth. Price, 12 marks. Pp. 165, with 7 illustrations. Leipzig: Akademische Verlagsgesellschaft, m. b. H., 1929.

BIRTH, STILLBIRTH AND INFANT MORTALITY STATISTICS FOR THE BIRTH REGISTRATION AREA OF THE UNITED STATES, 1926. Twelfth Annual Report, Part 1: Summary and Rate Tables and General Tables. Paper. Price, 60 cents. Pp. 253. Washington, D. C.: Supt. of Doc., Government Printing Office, 1929.

QUESTIONS AND ANSWERS FOR NURSES: New Objective Type and Essay Type. By Irene V. Kelley, R.N., Assistant Director of School of Nursing and Instructor of Principles and Practice of Nursing at Mount Carmel Hospital. Cloth. Price, $2.50 net. Pp. 354. Philadelphia: W. B. Saunders Company, 1929.

SEVENTY-FOURTH REGISTRATION REPORT OF BIRTHS, MARRIAGES, DIVORCES AND DEATHS FOR THE YEAR ENDED DECEMBER 31, 1921. Issued by the State Department of Health, Bureau of Vital Statistics. State of Connecticut, Public Document. Cloth. Pp. 223. Hartford, 1928.

CHILDREN IN AGRICULTURE. By Nettie P. McGill. U. S. Department of Labor, Children's Bureau. Bureau Publication, No. 187. Paper. Price, 25 cents. Pp. 81, with illustrations. Washington, D. C.: Supt. of Doc., Government Printing Office, 1929.

UMSTURZ UND AUFBAU DER PRAKTISCHEN MEDIZIN. Band II, Teil 1, und Band III, Teil 2. Von Sanitätsrat Dr. Kuschel, Augenarzt in Lüdenscheid. Paper. Pp. 116, and pp. 142, with illustrations. Oldenburg i O.: Rudolf Schwartz, 1929.

ANNUAL REPORT OF THE AMERICAN SUGAR REFINING COMPANY FOR THE THIRTY-EIGHTH YEAR ENDING DECEMBER THIRTY-FIRST, NINETEEN HUNDRED AND TWENTY-EIGHT. Paper. Pp. 42, with illustrations. New York, 1928.

A STUDY OF BODY RADIATION. By L. B. Aldrich. Smithsonian Miscellaneous Collections, Volume 81, No. 6. Paper. Pp. 54, with 9 illustrations. Washington, D. C.: Smithsonian Institution, 1928.

PSYCHOTHERAPIE: VORAUSSETZUNGEN, WESEN, GRENZEN: Ein Versuch zur Klärung der Grundlagen. Von Hans Prinzhorn. Paper. Price, 14 marks. Pp. 334. Leipzig: George Thieme, 1929.

ANNUAL REPORT FOR THE YEAR 1928 OF THE COMMITTEES OF THE MEDICAL SOCIETY OF THE COUNTY OF NEW YORK. Paper. Pp. 56. New York, 1928.

TUBERKULOZA OD DRA VASE SAVIĆA. Dr. Andrija Štampar, Socijalna Medicina III Deo. Cloth. Pp. 199, with illustrations. Zagrebu, 1926.

REPORT FOR 1927 AND 1928 OF THE LAURA SPELMAN ROCKEFELLER MEMORIAL. Paper. Pp. 19. New York, 1929.

DIABETES LATENTE. Tesis del Doctorado. Por el Dr. Felix Puchulu. Paper. Pp. 215. Buenos Aires, 1929.

REPORT OF THE TRUSTEES OF THE NEWBERRY LIBRARY FOR THE YEAR 1928. Paper. Pp. 50. Chicago, 1929.

PET GODINA SANATSIUMSKOG LECHENIA U TOPOLSHIZI, 1923-1927. Paper. Pp. 100. Zagrebu, 1927.

Medicolegal

Overexertion as an Accident

(Skroki v. Crucible Steel Company of America (Pa.), 141 Atl. 480)

Death caused by overexertion in the course of employment is an accident compensable under the workmen's compensation act of Pennsylvania; so also is death resulting from heat prostration. Proceedings under the workmen's compensation act were brought by the claimant to recover compensation for the death of her husband, an employee of the Crucible Steel Company of America. The referee decided in her favor, and his decision was affirmed by the compensation board and the court of common pleas. The employer thereupon appealed to the supreme court of Pennsylvania. The deceased employee, on the day preceding his death, began work at 7 o'clock and continued for about ten hours. During that time he had, as his share of the loads, lifted and carried steel weighing over 30,000 pounds. Later in the afternoon he suddenly became sick. After a rest he was taken to his home and put to bed. He was air hungry, the pulse and respiration were rapid and the temperature was subnormal. Three physicians testified in effect that death was due to "acute myocarditis, commonly called dilatation of the heart," caused by overexertion in a hot room. This, the supreme court held, was a compensable accident. The judgment of the court below was affirmed.

Pneumonia, a Fall, and Accident Insurance

(Pacific Mut. Life Ins. Co. v. Cash (Ky.), 6 S. W. (2d) 239)

The Pacific Mutual Life Insurance Company, Jan. 23, 1926, insured Robert H. Cash against the effects of bodily injuries, caused directly, independently, and exclusively of all other causes, by external, violent, and accidental means, expressly excluding suicide, or any attempt at suicide, sane or insane. February 23, the insured was admitted to a hospital for treatment for pneumonia. Three days later, while delirious, he climbed out of a window and fell headlong to the concrete pavement below. He died within a few hours. His widow, the beneficiary under the policy, brought action to recover the money she claimed was due under it. The insurance company defended on the ground, among others, that the death did not result from the fall but from the preexisting disease. It contended that an insurance company is not liable when the death happens in consequence of a coexisting accident and disease, unless the disease results from or is caused by the accident. The evidence showed that although the insured was suffering from a severe case of pneumonia and was delirious, his strength was sufficient to require several persons to handle him. He escaped by his own efforts. He fell from the second story of the hospital, to a cement pavement, some twenty feet below. One physician testified that he found no fatal wounds on the body. Another testified that it was possible, and even probable, that such a fall would cause internal injuries, not apparent externally, and that the location of the injuries would determine whether they were or were not necessarily fatal; the injuries that he observed might be calculated to produce death. Both physicians expressed the opinion that death resulted from pneumonia. In addition to the medical testimony, however, the jury had the evidence of the fall and the injury before it. The probable consequences of such a fall are a matter to which the knowledge and experience of the jury may be applied. Experts may express opinions, but the jury is at liberty to reach a contrary conclusion, if the facts on which the opinions of the experts are predicated are in evidence and possess sufficient probative force to warrant that result. If the deceased had been killed instantly, no one would deny the right of his beneficiary to recover on the policy. The fact that he lived a few hours and that reasonable minds might reach opposite conclusions from the evidence presents a case peculiarly for the jury. The jury could reasonably find from the evidence that the fall alone caused the death. Under such circumstances, the verdict of the jury is conclusive on the courts. The judgment of the court below, in favor of the beneficiary under the policy, was affirmed.

Testamentary Capacity

(Smarr et al. v. Smarr et al (Mo.), 6 S. W. (2d) 860)

This was a suit to set aside the will of one Smarr, because of his alleged lack of capacity to make a valid will. The case came before the supreme court of Missouri on appeal. The rule is, said the court, that sickness and old age do not, in and of themselves, constitute incapacity to dispose of property by will. Imperfect memory resulting from sickness or old age, forgetfulness of names of persons, repetition of questions, eccentricities in dress, and oddities of habit are not evidence of such mental disease as renders a person incapable of making a will. To show such incapacity, such evidence must be accompanied by proof of facts and of acts showing that the person is incapable of understanding the ordinary affairs of life, transacting his ordinary business, understanding the extent of his property, and appreciating those who would be the natural objects of his bounty. In this case, the contestants offered no substanial proof of such accompanying facts or acts, and the issue of testamentary capacity was properly withdrawn from the jury. The judgment of the court below establishing the will was therefore affirmed.

Spinal Puncture of Wrong Patient

(Gill v. Selling et al. (Ore.), 267 P. 812)

This was an appeal in an action of malpractice from a judgment for the plaintiff, Gill. She was given a thorough physical examination, including a blood test, by the defendants, March 31, 1926, and instructed to return, April 5, for a report on the examination. When she returned, she, under instructions of one of the defendant's staff nurses, submitted to a spinal puncture. She testified that she had no knowledge of the kind of operation or test to be performed but followed the directions of those having her in charge. There was no contention that the test was not made in a proper and skilful manner. It was conceded that it was not intended for her but for another patient. The plaintiff claimed that she had suffered, and at the time of her testimony was still suffering, great physical and mental pain. She complained of severe headaches, nausea, and pains in her legs. She asked compensatory damages and punitive damages also. A verdict and judgment for $6,250 were given in the patient's favor, without differentiating between the amounts awarded for compensatory damages and for punitive damages. The defendants appealed to the supreme court of Oregon. To subject a patient under such circumstances to an admittedly unnecessary operation of this kind, is, the court said, evidence of negligence. The argument that she consented to it did not appeal to the supreme court, nor did it appeal to the jury in the court below. In the face of evidence that the plaintiff did not know the nature of the test to be performed, how could it be said that she had given consent? Whether the evidence was sufficient to justify the trial court in submitting to the jury the question of punitive damages was a question of law for that court to determine. The mere fact, however, that the defendants may have been negligent does not warrant the inclusion in the verdict of what is sometimes referred to as "smart money." Punitive or vindictive damages are assessed on the theory of punishment and for a deterrent effect on others who might commit similar wrongs. Ordinarily the person who has been injured must be content with full and complete compensation; only in exceptional cases of negligence will the law permit punitive damages to be awarded. In this case the spinal test was made through inadvertence and mistake. Could it be said that it was performed with utter indifference as to the effect on the patient? Was there any evidence that either of the physicians had no regard for her welfare? Certainly they were not actuated by bad motives or any intent to injure. Viewing the evidence in the light most favorable to the plaintiff, the supreme court concluded that the question of punitive damages should have been withdrawn from the jury. But even assuming that there was evidence to warrant a finding of punitive damages against the defendant, M., who actually made the test, it would not follow by reason of M.'s relationship or association with the other physicians that the defendant, S., was liable. He was not present when the test was made and did not participate in it. He did not authorize it or subsequently approve it. It was performed without his knowledge or consent. Under any view of the evidence he should not be held liable in punitive damages. There are a few courts that would hold him liable on the theory of agency, but the great weight of authority is to the contrary. The failure of the plaintiff to establish a case against both defendants on the issue of punitive damages amounted to a waiver of all punitive damages. There is no apportionment of damages against joint wrong-doers, and in Oregon the plaintiff could not recover against the defendants in different amounts. The judgment of the trial court was reversed and the case remanded for a new trial.

Failure to Render Bills

(Cashion et al. v. Parr et ux. (Ark.), 6 S. W. (2d) 544)

The appellee, Parr, had been the physician of one J. M. Basket for many years. Parr, as a young physician, had roomed and boarded with Basket and his wife, and after the wife's death and Parr's marriage, Basket had been an inmate of Parr's household, except for a few years when he lived in Louisiana. Basket died, Nov. 30, 1926. Parr had received pay for services rendered Basket up to 1914. After that time he had presented no bill to Basket and had received no pay. After Basket died, Parr filed a claim against the estate for medical services for the period intervening between Jan. 1, 1914, and the date of Basket's death, Nov. 30, 1926, exclusive of the several years when Basket was living in Louisiana, amounting to $710. The administrator, Cashion, disallowed the claim, but the probate court allowed it. The administrator and certain legatees under Basket's will thereupon appealed to the circuit court. That court found that the claim for payment for medical services rendered from April 1, 1924, until the testator's death, including $225 for eight days' services during the last illness of the deceased, should be allowed in the sum of $550. The appellants thereupon brought the case to the supreme court of Arkansas for review. That court was of the opinion that the circuit court was in error in allowing Parr's claim, except for the services rendered during the last illness of the deceased. The allowance of $225 for that service, the court thought was excessive. Parr's claim for payment for professional services covered all the years from 1914, except the period when Basket was residing in Louisiana. During all those years Parr rendered no bill to Basket and made no claim for medical services. When Basket went to Louisiana to live and it was thought by all parties concerned that he would in all probability never return, nothing was said about any indebtedness from him to Parr. Moreover, during 1926 and immediately preceding Basket's death, Parr was paying to Basket every month $80 due on certain instalment notes, without claiming any deduction for medical services or otherwise. The circuit court was in error, therefore, the supreme court held, in allowing the items for medical services, except for services during Basket's last illness, and the evidence failed to show what those medical services were and that the charge of $225 was reasonable. For errors indicated above and others, the judgment of the court below was reversed and the cause remanded with directions to determine the value of Dr. Parr's services during the patient's last illness.

Hospital Records as Evidence

(Kirkpatrick et al. v. Wells (Mo.), 6 S. W. (2d) 591)

The appellants sued to recover damages because of the death of their father. In the trial court judgment was given for the defendant, and the plaintiffs appealed to the supreme court of Missouri, division 1. The deceased, a passenger on a street car, was apparently asleep. The conductor and the motorman attempted to arouse him. They were unable to do so and called a police officer to their assistance. The conductor, motorman and police officer, the evidence showed, dragged or carried the deceased from the car to the sidewalk, from which later he was taken in a patrol wagon to a hospital. He died before he reached the hospital. The plaintiffs alleged that his death was caused by injuries received in the course of his removal from the street car. The defendants apparently contended that he died of nephritis. The defendants introduced in evidence, over objections on behalf of the plaintiffs, the record of St.

John's Hospital purporting to show the disease from which the deceased suffered when a patient in that hospital. The admission of this record, the plaintiff claimed, was improper, because St. John's Hospital is not a public institution, there is no rule at law requiring records to be kept by private hospitals, and the records were not kept by officers under the law. They admitted that if the record had been the record of a public hospital its admission would have been proper. The supreme court pointed out, however, that the laws of Missouri require both public and private hospitals to keep records of the diseases of all patients. Under the general rule, said the court, all records required by law to be kept are admissible if properly identified. The record kept by St. John's Hospital in compliance with the law was, therefore, of equal dignity with the record kept by a public hospital. The person or persons making the record were performing a public duty under the law. If the record kept by a public hospital was admissible, there could be no sound reason why a record kept by St. John's Hospital should not be admitted. The appellants contended that the trial court was in error in not permitting one of their witnesses to testify from memory as to whether or not the record of the hospital showed that the deceased had nephritis. Objection to the admission of such evidence was properly sustained, however, because the record itself was the best evidence as to what it contained. For various errors, the judgment of the court below was reversed and the cause remanded.

Bronchopneumonia Not a Pulmonary Disease

(Southern Life & Health Ins. Co. v. Drake (Ala.), 117 S. 401; 117 S. 402)

The appellee, Drake, brought suit to recover on an insurance policy on the life of one Forrest. The policy was issued, Oct. 5, 1925. The insured died shortly thereafter, November 18, from bronchopneumonia. The policy provided that if the insured died within the first twelve months following the date of the policy, "either directly or indirectly from tuberculosis, pulmonary disease or chronic bronchitis, or cancer, or disease of the heart, liver, or kidneys, or pellagra," the liability of the company should be limited to one quarter of the sum specified as a death benefit. The insurer offered to pay the death benefit thus limited, but the beneficiary rejected the offer and brought suit to recover the full amount. The sole question was whether bronchopneumonia was a pulmonary disease within the meaning of the policy. In the circuit court, Jefferson County, judgment was rendered in favor of the beneficiary. From that judgment the insurer appealed to the court of appeals of Alabama. The court of appeals held that within the meaning of the policy bronchopneumonia was a pulmonary disease, and the court therefore reversed the judgment of the trial court and rendered a judgment in favor of the insurer. To obtain a review of that judgment, the beneficiary obtained from the supreme court of Alabama a writ of certiorari. The supreme court was of the opinion that only the diseases specifically named in the contract should relieve the insurer of full liability. "Pulmonary disease" and "chronic bronchitis" are specifically named. But pneumonia, which is an acute inflammation of the lungs, and bronchopneumonia, a disease of the same rapidly progressive character, are not so named. In *Metropolitan Life Insurance Company* v. *Bergen*, 64 Ill. App. 685, it was held that "pulmonary disease" does not include "pneumonia," which is but a temporary inflammation of the lungs, even though it frequently leads to results of a permanent nature. True, pneumonia and bronchopneumonia are commonly referred to as "diseases." The fact that they are so referred to should not operate, however, to determine a policy against the beneficiary, as the clause in the policy limiting the liability of the insurer was, in the opinion of the court, put there for the purpose of protecting the insurer in cases of death from diseases that were incipient when the policy was entered into. It seems very doubtful, said the court, that the policy intended to cut down benefits payable in case of death from bronchopneumonia, especially as, in order to cut down benefits in case of deaths from chronic bronchitis, it was deemed proper specifically to name that disease. The judgment of the court of appeals was therefore reversed, and the judgment of the trial court for the full amount of the policy was affirmed.

Society Proceedings

COMING MEETINGS

American Climatological and Clinical Association, Old Point Comfort, Virginia, May 2-4. Dr. A. K. Stone, Auburn Street, Framingham Center, Mass., Secretary.

American Gastro-Enterological Association, Atlantic City, May 6-7. Dr. W. J. Mallory, 1720 Connecticut Ave., N. W., Washington, D. C., Sec'y.

American Gynecological Society, Old Point Comfort, Va., May 20-22. Dr. Floyd E. Keene, 133 South 36th Street, Philadelphia, Secretary.

American Hospital Association, Atlantic City, June 17-21. Dr. Bert W. Caldwell, 18 East Division Street, Chicago, Executive Secretary.

American Laryngological Association, Atlantic City, May 20-23. Dr. George M. Coates, 1721 Pine Street, Philadelphia, Secretary.

American Neurological Association, Atlantic City, May 27-29. Dr. Henry A. Riley, 870 Madison Avenue, New York, Secretary.

American Ophthalmological Society, Hot Springs, Va., June 10-12. Dr. Emory Hill, 501 East Franklin Street, Richmond, Va., Secretary.

American Otological Society, Atlantic City, May 22-24. Dr. Thomas J. Harris, 104 East 40th Street, New York, Secretary.

American Pediatric Society, St. Louis, May 20-22. Dr. H. C. Carpenter, 1805 Spruce Street, Philadelphia, Secretary.

American Proctologic Society, Detroit, May 13-15. Dr. Walter A. Fansler, LaSalle Building, Minneapolis, Secretary.

American Psychiatric Association, Atlanta, Ga., May, 14-17. Dr. C. O. Cheney, Hudson River State Hospital, Poughkeepsie, N. Y., Secretary.

American Psychopathological Association, Atlanta, Ga., May 17. Dr. Martin W. Peck, 520 Commonwealth Avenue, Boston, Secretary.

American Society for Clinical Investigation, Atlantic City, May 6. Dr. J. T. Wearn, Boston City Hospital, Boston, Secretary.

American Surgical Association, Cleveland, May 2-4. Dr. Lincoln Davis, 205 Beacon Street, Boston, Secretary.

Arkansas Medical Society, Hot Springs, May 7-9. Dr. W. R. Bathurst, 810 Boyle Building, Little Rock, Secretary.

Association of American Physicians, Atlantic City, May 7-8. Dr. J. H. Means, Massachusetts General Hospital, Boston, Secretary.

California Medical Association, San Diego, May 6-9. Dr. Emma W. Pope, 593 Market Street, San Francisco, Secretary.

Connecticut State Medical Society, Waterbury, May 22-23. Dr. C. W. Comfort, Jr., 27 Elm Street, New Haven, Secretary.

District of Columbia, Medical Society of, Washington, D. C., May 1. Dr. C. B. Conklin, 1718 M Street, N. W., Washington, D. C., Sec'y.

Georgia, Medical Association of, Macon, May 8-10. Dr. Allen H. Bunce, 139 Forrest Avenue, N. E., Atlanta, Secretary.

Illinois State Medical Society, Peoria, May 21-23. Dr. Harold M. Camp, Lahl Building, Monmouth, Secretary.

Iowa State Medical Society, Des Moines, May 8-10. Dr. Tom B. Throckmorton, Bankers Trust Building, Des Moines, Secretary.

Kansas Medical Society, Salina, May 7-9. Dr. J. F. Hassig, 804 Huron Building, Kansas City, Secretary.

Maine Medical Association, Poland Springs, June 17-19. Dr. B. L. Bryant, 265 Hammond Street, Bangor, Secretary.

Massachusetts Medical Society, Boston, June 10-12. Dr. Walter L. Burrage, 182 Walnut Street., Brookline, Secretary.

Minnesota State Medical Association, St. Paul, May 13-15. Dr. E. A. Meyerding, 11 W. Summit Avenue, St. Paul, Secretary.

Mississippi State Medical Association, Gulfport, May 14-16. Dr. T. M. Dye, Box 295, Clarksdale, Miss., Secretary.

Missouri State Medical Association, Springfield, May 13-16. Dr. E. J. Goodwin, 901 Missouri Building, St. Louis, Secretary.

National Tuberculosis Association, Atlantic City, May 27-30. Dr. C. J. Hatfield, Henry Phipps Institute, Philadelphia, Secretary.

Nebraska State Medical Association, Omaha, May 14-16. Dr. R. B. Adams, Center McKinley Building, Lincoln, Secretary.

New Hampshire Medical Society, Manchester, May 28-29. Dr. D. E. Sullivan, 7 North State Street, Concord, Secretary.

New Jersey, Medical Society of, Atlantic City, June 12-15. Dr. J. B. Morrison, 66 Milford Avenue, Newark, Secretary.

New Mexico Medical Society, Taos, June 12-14. Dr. L. B. Cohenour, 219 West Central Avenue, Albuquerque, Secretary.

New York, Medical Society of the State of, Utica, June 3-6. Dr. D. S. Dougherty, 2 East 103d Street, New York, Secretary.

New York State Association of Public Health Laboratories, Utica, June 3. Mr. M. B. Kirkbride, New Scotland Avenue, Albany, Secretary.

North Dakota State Medical Association, Fargo, June 6-7. Dr. J. G. Lamont, San Haven, Secretary.

Ohio State Medical Association, Cleveland, May 7-9. Mr. Don K. Martin, 131 East State Street, Columbus, Executive Secretary.

Oklahoma State Medical Association, Oklahoma City, May 27-29. Dr. C. A. Thompson, Barnes Building, Muskogee, Secretary.

Oregon State Medical Society, La Grande, May 16-18. Dr. F. D. Stricker, Medical Arts Building, Portland, Secretary.

Rhode Island Medical Society, Providence, June 6. Dr. J. W. Leech, 369 Broad Street, Providence, Secretary.

Society for the Study of Asthma and Allied Conditions, Atlantic City, May 4. Dr. W. C. Spain, 20 East 36th Street, New York, Secretary.

Society of Neurological Surgeons, Montreal, Canada, June 3-5. Dr. Francis C. Grant, 133 South 36th Street, Philadelphia, Secretary.

South Carolina Medical Association, Charleston, May 7-9. Dr. E. A. Hines, Seneca, Secretary.

South Dakota State Medical Association, Mitchell, May 7-9. Dr. John F. D. Cook, Langford, Secretary.

Texas, State Medical Association of, Brownsville, May 21-23. Dr. Holman Taylor, Medical Arts Building, Fort Worth, Secretary.

West Virginia State Medical Association, Martinsburg, May 21-23. Mr. Joe W. Savage, 303 Professional Building, Charleston, Executive Sec'y.

Current Medical Literature

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Titles marked with an asterisk (*) are abstracted below.

American J. Psychiatry, Baltimore

8: 599-782 (Jan.) 1929

Intracranial Tumors Among Mental Hospital Patients. L. M. Davidoff and A. Ferraro, New York.—p. 599.
Three Levels of Cortical Elaboration in Relation to Certain Psychiatric Symptoms. S. T. Orton, New York.—p. 647.
Influence of Modern Psychopathology in State Hospital Practice. W. C. Garvin, Binghamton, N. Y.—p. 661.
Association of Psychoses with Puerperium. E. B. Saunders, Towson, Md.—p. 669.
Recent Methods in Treatment of General Paralysis. H. A. Bunker, Jr., New York.—p. 681.
Study of Personality. L. G. Lowrey, New York.—p. 695.
Sociologic Factors Challenging Practice of Psychiatry in Metropolitan District. J. S. Plant, Newark, N. J.—p. 705.
Some of Means for Guidance Approach and Appeal in Psychoses. R. Dewey, Pasadena, Calif.—p. 717.
Use of Sodium Luminal in Mental and Nervous Diseases. L. H. Smith, Philadelphia.—p. 727.
Dynamics of Schizophrenic Reactions Related to Pregnancy and Childbirth. G. Zilboorg, White Plains, N. Y.—p. 733.

American Review of Tuberculosis, Baltimore

19: 233-352 (March) 1929

*Cauterization of Adhesions in Artificial Pneumothorax by Jacobaeus-Unverricht Method of Closed Pneumolysis: 100 Cases. R. C. Matson, Portland, Ore.—p. 233.
Simplified Operating Thoracoscope. L. R. Davidson, New York.—p. 306.
*Hemoptysis in Tuberculosis Followed by Massive Pulmonary Atelectasis. J. L. Wilson, New York.—p. 310.
*Mind and Tuberculosis. B. Wolepor, Northville, Mich.—p. 314.
Study of Tuberculin Fractions Prepared from Nonprotein Culture Mediums. F. Eberson and E. Wolff, San Francisco.—p. 327.
Blood-Serum Calcium in Negro. C. L. Harrell, Norfolk, Va.—p. 350.

Cauterization of Adhesions in Artificial Pneumothorax.—In 100 cases in which the cauterization operation was done by Matson, there were fourteen single string or band adhesions. In forty-four cases there were multiple strings and bands, and in forty-two cases, diffuse folds. In ninety-two cases, a single cauterization operation was done, in sixty-eight successfully and in twenty-four unsuccessfully. The latter were all cases of the diffuse fold type of adhesions. In four cases two cauterizations were done; three were successful and one was unsuccessful because of the presence of diffuse folds. In two cases, three cauterizations were performed with a successful end-result in each. Two patients were operated on four times each. A satisfactory collapse was obtained in one; the other experienced improvement in the collapse, but diffuse folds of adhesions prevented a satisfactory end-result. In forty-two cases serous exudate was present at the time of operation, but in no instances were the quantities of fluid large. In patients with fluid the reaction to operation was no different than in those without fluid, except that, on the whole, more fluid occurred after operation than in the fluid-free cases. However, the end-result was in no instance impaired, nor was the postoperative course more stormy than in those without fluid at the time of operation. Of the fifty-eight patients without fluid before cauterization, forty-eight developed fluid after operation. In twenty-eight of the latter it was moderate and did not require any aspiration, while in twenty aspiration was done and treatment carried out as in cases in which fluid occurred during the course of pneumothorax. Purulent exudate was present before operation in two cases, but it was not aggravated by cauterization. Sixteen patients developed empyema; all of them were tuberculous. In three of the sixteen cases in which empyema developed, tube drainage was resorted to; in nine the empyema cleared up under oleothorax, and four patients are still under oleothorax treatment but are doing satisfactorily. Tuberculous empyema was predicted in seven cases before oleothorax was resorted to because during the cauterization scattered caseous tubercles were encountered in the adhesions. All of these were ordinary fold types. It is the author's routine practice to place from 150 to 250 cc. of 2.5 to 5 per cent of a cajuput oil preparation in the pneumothorax cavity after cauterization in cases in which pleural tubercles are seen and empyema is anticipated. He believes that it has had a very beneficial influence in preventing disseminated infection. There was no instance of empyema due to pyogenic bacterial infection. Bleeding to the extent of a few drops was frequently encountered in band and fold types of adhesions, but it either stopped spontaneously or was controlled by the cautery. Moderate hemorrhage occurred in one case (2 liters), but it was easily controlled by cauterization after the bleeding point was found; in this case multiple band adhesions were cauterized. No bleeding occurred in any case of string adhesions. Severe febrile reactions occurred in five cases. In one instance the fever lasted three weeks, and in two others, less than ten days. No shock or other serious complications were observed. Slight subcutaneous emphysema sometimes occurs, when it is usually the result of uncontrolled cough or light strapping after operation.

Hemoptysis in Tuberculosis Followed by Massive Pulmonary Atelectasis.—The case reported by Wilson is of interest because the patient expectorated a bronchial cast composed of a blood clot, and with its expectoration the pulmonary atelectasis rapidly disappeared.

Mind and Tuberculosis.—To determine what influence pulmonary tuberculosis had on the personality of the individual, a study of 100 patients was made by Wolepor. Forty patients exhibited neurasthenic symptoms; 80 per cent of this group had far advanced, 5 per cent had moderately advanced and 15 per cent had minimal pulmonary tuberculosis. There was comparatively little difference in the extent of the disease between the group displaying neurasthenic symptoms and the one free from mental stigmas. In association with pulmonary tuberculosis, two of the 100 patients had cerebrospinal syphilis; one had mitral stenosis; one bronchiectasis; one bronchial asthma; one diabetes; one chronic arthritis; one chronic interstitial nephritis; one hyperthyroidism, and one cholelithiasis. Forty-four patients had a "shut-in" character; the remaining fifty-six were sociable and "good mixers." The types of personality encountered are described as (1) the rebellious; (2) the phlegmatic; (3) the pessimistic; (4) the optimistic, and (5) the restless and apprehensive. The results of these studies led to the conclusion that there is no definite relationship between dementia praecox and pulmonary tuberculosis. The mode of living determines the large incidence of phthisis in hospitals for mental disease. Pulmonary tuberculosis does not alter the personality of the patient. It merely influences inherent tendencies and exposes the true individual. There is no one type of personality characteristic of pulmonary tuberculosis. The neurasthenia found in tuberculosis is not characteristic of this disease alone. It is often absent.

Archives of Neurology & Psychiatry, Chicago

21: 477-730 (March) 1929

*Organic Nervous Disease in Identical Twins. S. A. K. Wilson, London, England, and J. M. Wolfsohn, San Francisco.—p. 477.
Psychologic Components in Postencephalitic Oculogyric Crises. S. E. Jelliffe, New York.—p. 491.
*Calcifications in Choroid Plexus with Consideration of Their Significance. E. Sachs and C. Whitney, St. Louis.—p. 533.
Nervous Diseases of Chinese. A. H. Woods, Peking, China.—p. 542.
*Neurologic Aspects of Intermittent Claudication. T. K. Davis, New York.—p. 571.
*Intramedullary Cyst of Spinal Cord Associated with Circumscribed Intramedullary Tumor. C. E. Dowman and W. A. Smith, Atlanta, Ga.—p. 583.
*Acute Ascending Myelomalacia. A. A. Low, Chicago.—p. 594.
*Intracranial Aneurysms. B. R. Shore, New York.—p. 607.
*Effect of Alcohol on Patella Tendon Reflex Time. L. E. Travis and J. M. Dorsey, Iowa City.—p. 613.
Epilepsy: VI. Factors Affecting Convulsions Induced in Rabbits. W. G. Lennox, R. Nelson and W. P. Beetham, Boston.—p. 625.
Cranial Hyperostosis Associated with Underlying Meningeal Fibroblastoma. W. C. Spiller, Philadelphia.—p. 637.
Neurologic Basis of Elementary Education. S. T. Orton, New York.—p. 641.
*Relation Between Total Brain Weight and Some Component Parts in Epileptic Patients. H. A. Patterson and S. M. Weingrow, Sonyea, N. Y.—p. 648.

Effect of Storage (Icebox) on Cell Count in Pathologic Cerebrospinal Fluid. N. Novick, Maywood, Ill.—p. 658.
*Bromide Treatment for Epilepsy in Dispensary. O. Diethelm, Baltimore.—p. 664.
"Paretic Gold Curve" in Disseminated Sclerosis. H. D. McIntyre, Cincinnati.—p. 677.

Organic Nervous Disease in Identical Twins.—Wilson and Wolfsohn assert that, biologically considered, homologous twins are only one individual; physically they are two. In health, homologous twins show a striking similarity of structural, functional and mental equipment. When organic nervous disease occurs in homologous twins, it is most probably the result of inherent defects and is always present in both twins. The same obtains for the presence of anomalies and deformities in identical twins. An anomaly of development is always similar and equivalent in the two homologous twins. The authors cite four cases: (1) congenital nuclear ophthalmoplegia in identical twins; feeblemindedness; (2) cerebral diplegia in identical twins; feeblemindedness; (3) epilepsy in identical twins, and (4) diabetes and acute apoplexy in identical twins.

Calcifications in Choroid Plexus.—Sachs and Whitney report the case of a microcephalic idiot who on roentgen examination showed extraordinary calcification in the choroid plexuses. This case suggests several interesting possibilities: 1. One of the factors influencing the enlargement of the brain is the production of cerebrospinal fluid. 2. If air is introduced into the subarachnoid space, it may be possible to gain more light on the configuration of the convolutions. 3. The calcifications in the choroid plexus are formed about substances which the choroid has filtered out and which have been prevented from getting into the cerebrospinal fluid.

Neurologic Aspects of Intermittent Claudication.—On the basis of his observation of ten patients with intermittent claudication, Davis outlines the neurologic signs in six. Transitory neurologic phenomena due to transient spinal ischemia in the precise form described by Dejerine were not demonstrated in this series. On the other hand, it is indicated from this series of patients that, on a basis of secondary spinal sclerotic changes, permanent and progressing signs arise and constitute two outstanding and contrasting spinal syndromes. These are: (1) a predominantly spastic paraplegic syndrome, and (2) a predominantly poliomyelitic syndrome. In each there is, in addition, moderate involvement of the posterior columns. Impairment of control of the bladder may be present but is not common. It occurred in only one patient and was conspicuously absent in a patient with a poliomyelitic syndrome of a severe type. Serious weakening of the anal sphincter may develop.

Intramedullary Cyst of Spinal Cord Associated with Circumscribed Intramedullary Tumor.—A case is reported by Dowman and Smith in which a large intramedullary cyst involving the entire cervical cord was found above and separate from an intramedullary sarcoma. The cyst was under marked tension and large enough to produce a spinal block. Cyst and tumor were removed at separate operations, and the patient's condition improved very much. The authors point out that such cysts may occur either above or below a tumor of the spinal cord (intramedullary and extramedullary) as a result of cystic degeneration of the tumor, softening of an associated central gliosis, dilatation of the central canal, or foci of necrosis from vascular changes at a distance from the tumor. The presence of such a cyst should suggest the possibility of a neoplasm either above or below it, and careful examination should be made before the presence of a neoplasm is excluded.

Acute Ascending Myelomalacia.—Myelomalacia may give the picture of Landry's paralysis. In the case presented by Low, the spinal cord showed various stages of acute central nerve degeneration with reactive phenomena in the glia, blood vessels, meninges and central canal. Typical microglia cells were not found in the spinal cord. Their activity in removing the waste from the destroyed areas could not be demonstrated; such a function, at least in the spinal cord, is to be ascribed to the classic glia. The condition found in this case corroborates the view that the spinal canal, like the subarachnoid space, is the recipient of the waste resulting from degeneration of the spinal cord parenchyma. The adventitia of the capillaries takes an active part in the process of eliminating the glitter cells by means of thin processes which project and envelop the cells.

Intracranial Aneurysms.—Two additional cases of ruptured aneurysm are reported by Shore. In one case the ruptured aneurysm was situated at the junction of the right middle cerebral and right posterior communicating arteries. In the second case, an aneurysm of the basilar artery ruptured. One aneurysm is probably of congenital origin, while the other is best considered as being of the arteriosclerotic type. Each patient died as the result of intracranial hemorrhage, and in each the gradual and progressive character of the cerebral symptoms, combined with evidence of irritation of the nerves at the base of the brain, was sufficient at least to suggest a clinical diagnosis of ruptured intracranial aneurysm.

Effect of Alcohol on Patellar Tendon Reflex Time.—The following results were obtained by Travis and Dorsey in a study of patellar tendon reflex time just preceding, during and succeeding partial stupor resulting from alcoholic intoxication: 1. As stupor advanced, the reflex time progressively and irregularly decreased. 2. As stupor cleared up, the reflex time progressively and irregularly increased. 3. As stupor advanced, action current duration progressively and irregularly increased. 4. As stupor cleared up, action current duration progressively and regularly decreased. 5. A significant correspondence of a nature analogous to that of an inverse relationship existed between variations in reflex time and action current duration. 6. Certain irregularities of the action current waves were obtained.

Relation Between Total Brain Weight and Some Component Parts in Epileptic Patients.—Sixty specimens of brains which had been secured at necropsy from essential epileptic patients of both sexes, all of whom had had grand mal attacks and some of whom also had had petit mal seizures in addition were examined by Patterson and Weingrow. The average total brain weight falls below normal for both sexes. In the male epileptic patients, the right hemisphere tends to be somewhat heavier than the left; in female epileptic patients, the converse relationship obtains. The average weight of the cerebellum falls below normal in both sexes. The average weight of the brain stem is slightly above normal for both sexes. The cerebrocerebellar quotient determined according to Reichardt falls within normal limits in both sexes. In epilepsy, the weights of the hemispheres and of the cerebellum tend to be correspondingly reduced. The ratio of the weight of the cerebellum to the total brain weight is practically normal for the female group, but falls slightly below normal in the male group. In this series, the average total brain weight in both sexes falls below that reported for dementia and amentia except in instances of microcephaly, cerebellar atrophy and dementia senilis and paralysis. The weight of the respective hemispheres for both sexes in the authors' series also falls below that observed in the psychoses with the exceptions already noted and in some cases of functional psychoses. The average weight of the cerebellum also falls below that reported for the psychoses, except in some cases of atrophy and senile dementia. In the majority of instances the ratio of the weight of the cerebellum to the total brain weight tends to be higher in other nervous and mental abnormalities than in the authors' cases of epilepsy. This is also true of the cerebrocerebellar quotient of Reichardt.

Bromide Treatment for Epilepsy in Dispensary.—Diethelm sees important advantages in treatment with a combination of phenobarbital and bromide. Phenobarbital controls the attacks but does not have a specific influence on the epileptic process; its sudden cessation is dangerous. Sudden cessation of bromide intake is less dangerous. The bromide content drops gradually, and the patient will have one or two attacks under the decreased influence of bromide. These signs bring him back to the physician before it is too late. Treatment is started with slowly increasing doses of bromide, phenobarbital being administered at the same time in an amount that more or less controls the attacks. After a sufficient storage of bromide has been accomplished in the body, one tries to keep a constant bromide-chloride equilibrium. This is obtained through determination of the bromide replacement of chloride, according to which one can alter the dosage. A diet low in salt (about 5 Gm. a day) increases the influence of bromide. When one observes the effect of the bromide and notices improvement, one may decrease the phenobarbital gradually (1 grain [0.06 Gm.] each week)

and eliminate it entirely or continue it only in small amounts. The amount of bromide should not be diminished before the patient has been free from attacks for one or two years, and the patients should stay under observation for several years.

Archives of Surgery, Chicago

18: 769-934 (March) 1929

Automobile Injuries: Study from Records of 383 Postmortem Examinations. L. H. Bacon and E. R. LeCount, Chicago.—p. 769.
*Tannic Acid Treatment of Burns: End-Results in 114 Cases Compared with 320 Treated by Other Methods. F. Beekman, New York.—p. 803.
*Abnormal Arteriovenous Communications: Diagnosed from Oxygen Content of Blood of Regional Veins. G. E. Brown, Rochester, Minn. —p. 807.
Malignant Metastases Other Than to Regional Lymph Nodes. J. B. Carnett, Philadelphia.—p. 811.
*Effect of Bone Transplantation on Blood Calcium Level. G. Halperin and E. L. Walsh, Chicago.—p. 819.
*Synovectomy in Chronic Arthritis. N. Allison, Boston, and G. K. Coonse, Columbia, Mo.—p. 824.
*Method of Reconstructing a Voluntary Sphincter Ani. R. R. Wreden, Leningrad, Russia.—p. 841.
*Plastic Operation for Anal Incontinence. H. B. Stone, Baltimore. —p. 845.
*Suppurative Pericarditis: Two Cases Drained by Posterior Route. H. H. Loucks, Peking, China.—p. 852.
Strangulated Left Duodenal Hernia: Case with Recovery. B. L. Coley, New York.—p. 868.
*Intussusception Due to Intestinal Lipoma in Adult, Followed by Gangrene in Abdominal Wall. J. S. Horsley, Richmond, Va.—p. 882.
*Primary Giant Cell Tumor of Patella. M. J. King, Mount McGregor, N. Y., and G. S. Towne, Saratoga Springs, N. Y.—p. 892.
*Cholecystogastrostomy. M. G. Beaver, Rochester, Minn.—p. 899.
Review of Urologic Surgery. A. J. Scholl, Los Angeles; E. S. Judd, Rochester, Minn.; L. D. Keyser, Roanoke, Va.; G. S. Foulds, Toronto; J. Verbrugge, Antwerp, Belgium, and A. A. Kutzmann, Los Angeles.—p. 913.

Tannic Acid Treatment of Burns.—The technic of the tannic acid treatment, as carried out in the children's surgical service of Bellevue Hospital, is similar to that laid down by Davidson in August, 1925, except that a 5 per cent solution has been used and the same solution has been applied to burns of the face, instead of the tannic acid ointment, without injurious results to the eyes. Beekman says that recently, in the treatment of patients, particular attention has been paid to the early administration of fluids, in order to prevent blood concentration. The most effective manner of administering the fluids is by hypodermoclysis of a 5 per cent dextrose solution. Additional fluids may be given by mouth and by rectum. A good working rule is that in twenty-four hours a patient should take at least 1 liter of fluid for every 25 pounds (11.3 Kg.) of body weight. Opiates should be used sparingly, as their action of lessening secretions is a contraindication to their use. The mortality has been decreased from 28 to 15 per cent in a series of 434 cases of burns in children. This decrease of mortality is the result of lowering the death rate from toxemia by two thirds. The greatest mortality from toxemia occurs in the period of time between the end of the first twenty-four hours and the end of the third day. The average hospital stay of patients was increased six days by the tannic acid treatment. This is probably the result of the fact that patients with severe cases of burns lived who otherwise would have died.

Abnormal Arteriovenous Communications.—Nine cases of congenital and acquired forms of arteriovenous communications were studied by Brown. The percentage of oxygen saturation of the blood from the arterialized veins in the region of the fistula indicated varying grades of admixture of arterial and venous blood in the acquired or single communicating forms. The degree of admixture indicates roughly the size of the arteriovenous communication. The color of the mixed venous blood when compared with the unmixed venous blood obtained from a normal vein is usually sufficient to establish the diagnosis of an abnormal connection between the artery and vein. When this evidence is equivocal, determination of the percentage of the saturation of oxygen can be carried out. The establishment of this sign is absolute evidence of arteriovenous communication.

Effect of Bone Transplantation on Blood Calcium Level.—According to Halperin and Walsh homogeneous bone transplants in normal dogs and rabbits fail to raise the blood calcium level. The changes noted were not in excess of normal variations.

Synovectomy in Chronic Arthritis.—Allison and Coonse assert that synovectomy is a useful operation in properly selected cases in polyarticular as well as in monarticular arthritis. In practically all cases, it relieves pain and enables the patient to resume weight-bearing. Of the series here reported, 65 per cent showed marked improvement in general health. There is evidence to show that removal of both semilunar cartilages in a complete synovectomy improves the function and gives greater relief from pain. Synovectomy is contraindicated in acute gonorrheal arthritis but has value in the chronic subacute stage of gonorrheal arthritis. The improvement that is noted immediately after operation in cases of multiple proliferative arthritis is most striking. The explanation for this is doubtful. It has long been observed that these patients show marked lessening of symptoms in the joints after the administration of a general anesthetic or after protein shock. After synovectomy, all the involved joints are less painful and less swollen, and it has seemed to the authors that in the foregoing series a large percentage of this improvement has remained.

Method of Reconstructing a Voluntary Sphincter Ani.—Wreden encircles the rectum with two loops of fascia lata taken from the gluteus maximus, each loop also being hooked around several fasciculi of the muscle on either side, thus providing muscular control of the fascial loops.

Plastic Operation for Anal Incontinence.—Instead of using the patient's own fascia as is done by Wreden, Stone used strips of Koontz's prepared fascia. This was done to avoid the additional operation on the thigh. It is possible that in case 2 better healing might have resulted if autogenous fascia had been used. In one patient operated on according to this method, the end-result was very gratifying. In a second case the operation was a failure because of infection setting in and destroying the fascia loops.

Suppurative Pericarditis.—Two cases of suppurative pericarditis are recorded by Loucks: one secondary to a gunshot wound of the chest, the other secondary to what eventually proved to be actinomycosis. Posterior drainage was instituted in both cases with recovery. In one case, a walled-off abscess of the posterior pericardium following an anterior pericardiostomy was evacuated through a previously made posterior thoracostomy incision. In the second case, the posterior approach was utilized after an unsuccessful attempt at anterior drainage had been made. The advantage of the natural postural drainage of the posterior pericardium afforded by this method of approach is emphasized. The limitations of this approach are suggested, as well as its practicability primarily in certain cases and alternatively in others in which anterior drainage is not feasible. Postural rather than tube or tissue drainage is advocated. The use of a solution of chlorinated soda by instillation is felt to be safe and of great value in most cases.

Intussusception Due to Intestinal Lipoma in Adult.—A case is reported by Horsley in which an operation was performed on an elderly man for intussusception apparently due to a lipoma of the ileum. Massive gangrene of the abdominal wall followed, necessitating excision of the gangrenous tissue and temporary repair of the abdominal wall with a section of an inner tube from an automobile tire. Later, a plastic operation was performed. On account of painful pharyngitis, a gastrostomy was done.

Primary Giant Cell Tumor of Patella.—A case of primary giant cell tumor of the patella is reported by King and Towne. Two years after curettement, the patient was well and did not notice any impairment of function of the knee joint. A roentgenologic recurrence occurred after two years, which should readily yield to curettement and cauterization.

Cholecystogastrostomy.—An experimental study of cholecystogastrostomy was undertaken by Beaver to determine the effect of bile in the stomach on gastric secretion and motility, as well as the possibility of infections of the biliary tract and liver. Twelve normal dogs were studied in two series of six dogs each. In the first, gastric digestion was studied by the McCann method of fractional gastric analysis for dogs. The emptying time of the stomach was also determined by means of the barium meal and the fluoroscope. Cholecystogastrostomy was then performed with double ligation and incision of the common bile duct. Following recovery, fractional gastric

analyses were again made to determine whether the bile had any effect on gastric acidity. The results in the first series showed definitely that bile did not have any effect on the acidity of the stomach. The postoperative emptying time was essentially the same as the preoperative. In the second series of dogs, gastric analyses were not made, but the same type of operation was performed as in the first series. The dogs were allowed to live under normal conditions for varying lengths of time and were then operated on to determine whether pathologic processes were developing in the gallbladder and liver. The results of the observations in the second series led to the conclusion that infections of the biliary tract and liver always occur following cholecystogastrostomy. It is suggested that the absence of clinical evidence of such infections does not preclude the possibility that pathologic changes in the biliary tract and liver are occurring in patients who have been subjected to cholecystogastrostomy.

Colorado Medicine, Denver

26: 67-94 (March) 1929

*Diagnosis of Tracheobronchial Tuberculosis in Childhood. I. D. Bronfin, Denver.—p. 69.
Retrodisplaced Uterus: Its Significance. C. Powell, Denver.—p. 77.
*Bromsulphalein Liver Function Test as Diagnostic Aid in Hepatic Diseases. W. B. Yegge, Denver.—p. 79.
Artificial Intra-Uterine Insemination. L. W. Mason, Denver.—p. 86.

Diagnosis of Tracheobronchial Tuberculosis in Childhood.—In a roentgen study made by Bronfin of 300 preventorium children, sixty-six, or 22 per cent, showed paratracheal or bronchial lymph node tuberculosis. Of these, only 60 per cent presented during observation one or more suggestive symptoms. Persistent underweight was present in more than 93 per cent. Fatigue, irritability and fever were next in order of frequency. Cough was the least important symptom, as it was present in only 12 per cent. Cervical adenitis, while present in more than 50 per cent, is admittedly by itself not sufficient for diagnosis, unless other causes can be excluded and evidence of calcification is demonstrated roentgenographically. Physical signs were inconstant, misleading and often inconsistent with the roentgen observations. The extent of the lymph node enlargement was not always proportional to the symptoms. There were many children who did not show any evidence of disease except varying degrees of malnutrition, although their plates showed extensive glandular involvement. There was no apparent recession in the size of the lymph nodes nor a change in their appearance following clinical improvement. Bronfin feels that the conclusion is therefore justified that there is no one symptom or sign which would unequivocally warrant a diagnosis of tracheobronchial tuberculosis. A differentiation must be made between active and inactive disease. A diagnosis of active tracheobronchial disease must be based on a history of exposure, a positive tuberculin reaction, definite clinical symptoms, such as renal underweight with occasional fatigue, fever and possibly digestive difficulties, plus a roentgen film showing calcium bearing lymph node enlargements.

Bromsulphalein Liver Function Test as Diagnostic Aid in Hepatic Diseases.—In fifty-four cases tested by Yegge the diagnosis was proved and the liver examined at operation or necropsy, except in six cases of catarrhal jaundice and seven cardiac cases, in which the diagnosis was very evident. In a case of cancer of the liver there was marked retention, even at the end of an hour. Seven cases of cirrhosis of the liver showed dye retention in proportion to the amount of liver tissue destroyed. In the ten cases of obstructive jaundice the dye retention was high at the end of thirty minutes, but at the end of an hour it had practically all disappeared from the serum, except in three patients, who died soon after the test was taken. In two cases in which operations were performed and the obstructions removed, the retention had a tendency to return to normal after a few months, thus showing that there was some destruction to the liver but not of a permanent nature. In the one case of acute yellow atrophy of the liver the retention of the dye was very high, 75 per cent of the dye being present at the end of an hour. In six cases of catarrhal jaundice there was marked retention, but the retention seemed to vary with the degree and length of jaundice. In all ten cases of chronic cholecystitis there was practically no dye retention at the end of thirty minutes, except in one case in which there was a suggestion of cirrhosis of the liver. In the eleven cases of cardiac diseases with liver enlargement there was a marked retention when the test was made at the height of the period of cardiac decompensation, but as the heart began to compensate, the liver to lessen in size and the edema to disappear, the retention was lessened and often returned to almost normal. Fully compensated hearts did not show any more abnormality with the test than some normal hearts. Yegge believes that the bromsulphalein test is the most practical and dependable of the liver function tests or, rather, biliary permeability tests, that have yet been developed.

Endocrinology, Los Angeles

12: 707-835 (Nov.-Dec.) 1928

Endocrine Glands: VI. Pluriglandular Syndromes. A. W. Rowe and C. H. Lawrence, Boston.—p. 707.
Vaginal Smear Method of Assay of Ovarian Hormone. L. C. Kahnt and E. A. Doisy, St. Louis.—p. 760.
Distribution of Ovarian Hormone Between Liquor Folliculi and Residual Tissue. S. Thayer and E. A. Doisy, St. Louis.—p. 769.
Thyroid Gland in Infections: Effect on Basal Metabolism. N. A. Womack, W. H. Cole and A. G. Heideman, St. Louis.—p. 773.
Pineal Gland and Metamorphosis: Influence of Pineal Feeding on Rate of Metamorphosis in Frogs. J. Addair and F. E. Chidester, Morgantown, W. Va.—p. 791.
Relation of Light to Action of Parathyroid Extract. H. Rosello and L. M. Petrillo, Montevideo.—p. 797.
Case of Diabetes, Refractory to Insulin, with Hyperplastic and Adenomatous Suprarenals. R. A. Moore, Columbus, Ohio.—p. 800.
Ovarian and Placental Hormone Effects in Normal, Immature Albino Rats. G. T. Golding and F. T. Ramirez, Columbia, Mo.—p. 804.

Georgia M. Assoc. Journal, Atlanta

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Concerning Headaches. G. E. de Schweinitz, Philadelphia.—p. 51.
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An Anomaly of Rectum Opening into Vagina: Absence of Anus. L. W. Grove, Atlanta.—p. 67.
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Urinary Antiseptics. M. L. Boyd, Atlanta.—p. 73.
Malaria. J. W. Chambliss, Americus.—p. 78.
Organic Heart Disease: Diagnosis. E. D. Shanks, Atlanta.—p. 81.
Acriflavine as Injection in Colitis. W. L. Wilkinson, Bainbridge.—p. 84.
Lumbar Puncture. C. E. Dowman, Atlanta.—p. 85.

Johns Hopkins Hospital Bulletin, Baltimore

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Uterine Bleeding as Early Sign of Pregnancy in Monkey (Macacus Rhesus): Fertile Period of Menstrual Cycle. C. G. Hartman, Baltimore.—p. 155.
Placentation of Macaque (Macacus Rhesus): Origin of Blood Constituting Placental Sign. G. B. Wislocki and C. G. Hartman, Baltimore.—p. 165.
Tetraploid Number of Chromosomes in Malignant Cell of Walker Rat Sarcoma 1. M. R. Lewis, Washington, D. C., and J. Lockwood, Baltimore.—p. 187.
*Varicella Complicated by Acute Nephritis. E. R. Denny and B. M. Baker, Jr., Baltimore.—p. 201.
On Photographing Gross Pathologic Specimens. W. G. MacCallum, Baltimore.—p. 207.

Varicella Complicated by Acute Nephritis.—Denny and Baker report a case of mild acute nephritis occurring in a boy, aged 6, during the course of hemorrhagic varicella and preceded by an acute infection of the tonsils with hemolytic streptococci of the B type. Without a careful bacteriologic study of the fauces and urine it might have been supposed that the hemorrhagic nephritis was in some way directly associated with the attack of varicella, but the presence of a complicating acute tonsillitis due to B hemolytic streptococci, and the occurrence of the same organism in the urine during the entire acute phase of the nephritis, leads to the suggestion that the nephritis arose as a complication of the tonsillitis rather than of the varicella. Though it seems probable that the organisms must have reached the kidneys by way of the blood stream, it is of interest to note that a blood stream infection was not demonstrable by blood culture during the early stage of the streptococcus infection. The close parallelism between the course of the nephritis and the course of the infection, with the presence of B hemolytic streptococci in the throat and urine, lends further support to the view that the nephritis was caused directly by the streptococcus. It is possible that the secondary infection by streptococci may have been responsible for the hemorrhagic form of the varicella.

Journal of Comparative Psychology, Baltimore

9: 1-122 (Feb.) 1929

Relationship Between Refractory Phase and Negative Adaptation in Reflex Response: I. L. H. Cohen, New Haven, Conn.—p. 1.
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Experimental Studies in Homing of Carpenter and Mining Bees. P. Rau, Kirkwood, Mo.—p. 35.
Spinal Conduction and Kinesthetic Sensitivity in Maze Habit. K. S. Lashley and J. Ball, Chicago.—p. 71.
White Rats' Use of Visual Stimuli in Discrimination of Geometric Figures. P. E. Fields, Columbus, Ohio.—p. 107.

Laryngoscope, St. Louis

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Lesions of Cochlea Experimentally Produced in Guinea-Pigs by Injecting Fecal Extract from Cases of Progressive Deafness. M. J. Gottlieb, New York.—p. 115.
Dehiscence of Posterior Wall of Sphenoid Sinus: Case. L. K. Elfman, Philadelphia.—p. 131.
Modified Ligature Carrier. F. T. Hill, Waterville, Maine.—p. 134.
Cells in Vomer. D. MacFarlan, Philadelphia.—p. 135.

Michigan State M. Soc. Journal, Grand Rapids

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Dietetic Treatment of Diabetes Mellitus: Fundamental Principles. L. H. Newburgh, Ann Arbor.—p. 211.
Standardization of Insulin to Ten Unit, Fifty Unit and One Hundred Unit Strengths. C. L. Hess, Bay City.—p. 214.
Importance of Early Diagnosis of Diabetes. H. J. John, Cleveland. —p. 217.
Shrine at Lourdes. H. R. Carstens, Detroit.—p. 227.
Rabies: Symposium: Clinical Aspects. W. M. Donald, Detroit.—p. 230.
Id.: Etiology, Pathogenesis and Pathologic Anatomy. A. L. Amolsch, Detroit.—p. 235.
Id.: Methods of Production of Various Types of Antirabic Vaccines. A. S. Schlingman, Detroit.—p. 237.
Id.: Veterinary View in Michigan. B. J. Killham, Lansing.—p. 239.
Id.: H. W. Emerson, Ann Arbor.—p. 240.
*General Paralysis Treated with Malaria at Eloise Hospital, Eloise, Mich.: 278 Cases. J. E. Bennett, I. L. Polozker and I. M. Altshuler, Eloise.—p. 241.
Hygiene of Mind. T. J. Heldt, Detroit.—p. 245.
Some Activities of Medical Department of Michigan Tuberculosis Association for 1928. E. R. Vanderslice, Lansing.—p. 249.
Interstitial Pregnancy Operated on Before Rupture: Case. C. E. Dutchess, Detroit.—p. 251.
Love of Surgery. J. Liburt, Detroit.—p. 253.
Cavernous Sinus Thrombosis: Case. B. F. Glowacki, Detroit.—p. 254.
Michigan's Department of Health. G. L. Kiefer, Lansing.—p. 256.

Results of Treating Paresis with Malaria.—Bennett et al. report on the treatment of 278 patients with intramuscular injections of malaria blood. The results were: 105 improved; sixty unimproved; one worse; fifty-seven dead, and forty-one paroled as completely cured.

Minnesota Medicine, St. Paul

12: 121-180 (March) 1929

Treatment of Acute Epidemic Encephalitis. F. W. Heagey, Omaha. —p. 121.
Impressions from Surgical Study Trip Abroad. O. H. Wangensteen, Minneapolis.—p. 129.
Diagnosis and Classification of Various Forms of Bladder Neck Obstruction. F. E. B. Foley, St. Paul.—p. 137.
*New and Simple Technic for Lipiodol Injection of Uterus. F. L. Adair and R. E. McDonald, Minneapolis.—p. 146.
Fishes from Mississippi River and Other Waters with Respect to Infestation by Diphyllobothrium Latum. H. E. Essex, Rochester.—p. 149.
*Use of Potassium Sulphocyanate (Rhodan) in Treatment of Essential Hypertension. R. C. Logefeil, Minneapolis.—p. 151.
Clinical Aspects of Cystitis. A. E. Sohmer, Mankato.—p. 160.

New and Simple Technic for Iodized Oil Injection of Uterus.—Instead of using Rubin's cannula, Adair and McDonald insert a rubber mushroom or retention catheter into the uterus by means of the regular mandrin used for insertion of retention catheters in urologic practice. The anterior lip of the cervix is held with a tenaculum for convenience while the catheter is being placed, but is released before the roentgen exposure is made. The catheter is then drawn down so that the bulb, or mushroom tip, rests firmly over the internal os. Iodized oil is then injected and the plates are made. This method requires less time and gives equally good results in most instances without the instruments being shown in the roentgenogram. In a few cases there has been a small reflux of iodized oil along the sides of the catheter into the vagina, but this occurs only in multiparous women with more or less patulous cervices and has been noted also in similar cases in which the technic employing the cannula has been used. This condition may, however, be more easily avoided in the newer method here described by simply selecting a catheter of a caliber suitable to the degree of patency of the external os and cervical canal.

Use of Potassium Sulphocyanate in Treatment of Essential Hypertension.—Experience with the use of potassium sulphocyanate (8 per cent solution) in twenty-four cases of essential hypertension leads Logefeil to believe that it is the most valuable drug in reducing the blood pressure. If the proper precautions are taken in regard to dosage, unfavorable symptoms should not result. In most cases the patients were ambulatory, and blood pressure readings were taken at the office under the same circumstances as far as possible. All patients were placed at once on a moderately low protein and salt diet. Favorable reduction of the blood pressure resulted in twenty-one cases; only two cases seemed to be refractory to the drug, and little or no decrease in blood pressure was obtained after the drug was given a fair trial. One patient showed a good drop in blood pressure after taking the medicine for a week, but the drug had to be discontinued because of extreme nervousness and weakness. The greatest reduction in the blood pressure was 110 points systolic, the least 10 points; the greatest diastolic drop was 50 points, and the least 0 points. The average reduction was, systolic, 50 points; diastolic, 25 points. In all cases an 8 per cent solution of potassium sulphocyanate in distilled water was used, the initial dose usually being 1 drachm or a teaspoonful in a whole glass of water, three times a day after meals. This was generally continued for two weeks if no unfavorable symptoms (marked weakness, nervousness or dermatitis) resulted, at which time it was discontinued for two days, and then the patient would take the same dose, omitting two days in each week. After four weeks or sometimes sooner, according to the drop in blood pressure and the general symptoms of the patient, the dose was given only twice a day. This dose was continued indefinitely on a ration basis, the drug being omitted two or three days a week, as the condition indicated. In this way an accumulation of the drug could be avoided. In most of the cases this ration dose was enough to keep the blood pressure at a considerably lower level than would have been possible otherwise without the drug. The only contraindications observed by Logefeil were in cases of idiosyncrasy to the drug in one way or another, and in cases in which there was considerable kidney or myocardial impairment.

Nebraska State M. Journal, Norfolk

14: 97-136 (March) 1929

Anemia in Infants and Children. C. G. Grulee, Chicago.—p. 97.
Orthopedic Clinic. K. R. Werndorff, Council Bluffs, Iowa.—p. 102.
Treatment of Tuberculosis by Altering Metabolism Through Dietary Management (Gerson-Sauerbruch Method). C. Emerson, Lincoln. —p. 104.
Radiology of Gallbladder. E. W. Rowe, Lincoln.—p. 107.
Latent Mastoid Infections in Infants. B. M. Kully, Omaha.—p. 112.
Suprarenal Hemorrhage: Case. M. E. Grier and B. C. Russum, Omaha.—p. 113.
Chronic Subdural Hemorrhage: Case. E. A. Connolly and T. L. Houlton, Omaha.—p. 115.
Fourth Ventricle Tumor: Case. A. E. Bennett, Omaha.—p. 117.
Intussusception. O. D. Johnson, Kearney.—p. 119.
Use of Lactic Acid as Vaginal Douche. C. F. Moon, Omaha.—p. 121.

New Orleans M. & Surg. Journal

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Value and Limitations of Laboratory Methods in Clinical Investigation of Cardiovascular Diseases. C. J. Wiggers, Cleveland.—p. 601.
Diagnosis of Myocardial Insufficiency: Modification of Dwight-Frost Cardiorespiratory Test. A. Eustis, New Orleans.—p. 605.
Psychic Factors in Physical Disease. C. S. Miller, Jackson, La.—p. 611.
Puerperal Infection. T. B. Sellers and J. T. Sanders, New Orleans. —p. 619.
Uterine Hemorrhages and Significance. O. P. Daly, Lafayette, La. —p. 624.
Placenta Praevia. J. F. Lucas, Greenville, Miss.—p. 628.
Pseudocyesis. J. M. Bodenheimer, Shreveport, La.—p. 632.

Treatment of Lung Abscesses. S. H. Hairston, Meridian, Miss.—p. 634.
Traumatic Rupture of Normal Spleen. A. P. Heineck, Chicago.—p. 636.
Diagnosis and Treatment of Celiac Disease: Two Cases. C. T. Williams, New Orleans.—p. 647.
Surgical Diseases of Biliary System: Bile Ducts. E. Garside, New Orleans.—p. 652.

Ohio State Medical Journal, Columbus

25: 185-248 (March 1) 1929

Splanchnic Anesthesia: Use in Upper Abdominal Surgery. M. E. Blahd, Cleveland.—p. 189.
Clinical Aspects of Blood Pressure. H. B. Weiss, Cincinnati.—p. 191.
Management of Malignancies in Otolaryngology. J. C. Beck, Chicago.—p. 195.
Effect of Various Diseases on Sensitivity of Tuberculin Test. W. B. Wherry, B. E. Eddy, A. G. Mitchell and F. E. Stevenson, Cincinnati.—p. 199.
Personality Studies and Physical Constitution in Alcoholism. L. J. Karnosh, Cleveland.—p. 201.
Traumatism in Disease Calling for Compensation. D. W. T. McGriff, Lima.—p. 203.
Stigmatized Maid of Konnersreuth. F. P. Anzinger, Springfield.—p. 205.
*Advantages of Gentian Violet as Local Antiseptic. S. Donath, Toledo.—p. 208.
Myocardial Abscess with Chronic Myocarditis: Case. F. F. Lawrence and E. Scott, Columbus.—p. 209.
Early Tetanus Simulating Appendicitis. C. H. Reuter, Springfield.—p. 210.

Advantages of Gentian Violet as Local Antiseptic.—Donath uses a 2 per cent alcoholic solution of gentian violet for the purpose of disinfecting the skin before minor operations and wound sutures. He has never had a single case of infection originating in the area where the gentian violet was applied. Like mercurochrome, it does not burn or irritate the tissues, and it has the further advantage of a greater disinfecting power against the common pyogenic bacteria than mercurochrome. A 2 per cent watery solution of gentian violet was used for treating infected wounds and to prevent infection of so-called clean wounds before suturing. The results were very satisfactory. Infected wounds, in which no treatment had been given until twenty-four hours or more after the accident, were cleansed and opened when necessary and then packed with sterile gauze dipped in a 2 per cent watery solution of gentian violet. Donath has also used gentian violet in the after-treatment of carbuncles and boils. The boil is opened, the contents are removed and the cavity is packed with sterile gauze dipped in a 2 per cent solution of gentian violet. In making a solution for this purpose he usually adds about 25 per cent of glycerin. The glycerin prevents drying and retention of the pus. Finally he has used gentian violet successfully in treating local skin infections, especially those caused by *Trichophyton tonsurans* (ringworm). In cases in which there were only a few spots on the skin, apparently not older than from twenty-four to forty-eight hours, one application of 2 per cent solution was sufficient. Twenty-four hours after the first treatment the itching subsided, and in a few days the whole process was healed.

Physical Therapeutics, New York

47: 73-151 (Feb.) 1929

Mode of Action of Thermotherapy. P. Roth, Battle Creek, Mich.—p. 73.
New Whirlpool Bath for Institutions. C. Pope, Louisville, Ky.—p. 80.
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Fracture of Finger with Infection. C. R. Brooke, Newark, N. J.—p. 91.
Treatment of Colitis in Diverticulosis. L. H. Levy, New York.—p. 94.
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Energy Measurements of Clinical Ultraviolet Sources. H. Goodman, New York.—p. 128.

Radiology, St. Paul

12: 183-274 (March) 1929

Roentgenologic Diagnosis of Ureteral Stricture. W. F. Braasch, Rochester, Minn.—p. 183.
Roentgen Findings in Obscure Kidney Lesions. W. B. Bowman and L. S. Goin, Los Angeles.—p. 188.
Spina Bifida Occulta: Relation to Dilatations of Upper Urinary Tract and Urinary Infections in Childhood. H. O. Mertz and L. A. Smith, Indianapolis.—p. 193.
Anomalies of Ureters and Kidney Pelves. R. P. Potter and W. G. Sexton, Marshfield, Wis.—p. 199.
Foreign Object (Needle) in Kidney. E. S. Blaine, Chicago.—p. 207.
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Rôle of Radiation Therapy in Pelvic Infections. A. Soiland, W. E. Costolow and O. N. Meland, Los Angeles.—p. 230.
Nature of Arthritis: Some Forms of Physical Therapy Useful in This Disease. R. Pemberton, Philadelphia.—p. 235.
Fractures of Femur. W. L. Estes, Bethlehem, Pa.—p. 239.
Case Management in Radiotherapy. M. Hoing, Chicago.—p. 249.

South Carolina M. Assoc. Journal, Greenville

23: 315-346 (Feb.) 1929

Treatment of Cancer. J. R. Allison, Columbia.—p. 317.
Vincent's Infection of Mouth and Throat. F. M. Routh, Columbia.—p. 322.
Fusospirochetal Disease of Lungs. E. W. Carpenter, Greenville.—p. 325.
Arsenicals and Optic Nerve. J. W. Jervey, Greenville.—p. 329.

Surgery, Gynecology & Obstetrics, Chicago

48: 305-448 (March) 1929

*Strictures of Common and Hepatic Bile Ducts. W. Walters, Rochester, Minn.—p. 305.
*Malignant Tumors of Female Breast. G. V. S. Smith and M. K. Bartlett, Boston.—p. 314.
*Management of Ureteral Injuries with Discussion of Surgical Indications in Patients Who Require Ureteral Transplantation. A. H. Curtis, Chicago.—p. 320.
Malignant Bone Tumors. V. Putti, Bologna, Italy.—p. 324.
*Chordoma. A. J. Hutton and A. Young, Glasgow, Scotland.—p. 333.
Venous Dilatations and Other Intraspinal Vessel Alterations, Including True Angioma, with Signs and Symptoms of Cord Compression. J. H. Globus and L. J. Doshay, New York.—p. 345.
Contributing Causes of Genito-Urinary Anomalies. C. H. Mayo, Rochester, Minn.—p. 367.
Suprarenal Factor in Hyperthyroidism. G. W. Crile, Cleveland.—p. 371.
*Paravertebral Anesthesia in Urology: 1,000 Cases. H. B. Hermann, New York, and E. Dózsa, Budapest, Hungary.—p. 375.
Periurethral Phlegmon (Urinary Extravasation): 135 Cases. M. F. Campbell, New York.—p. 382.
Incidence of Stricture of Ureter. K. Frater and W. F. Braasch, Rochester, Minn.—p. 390.
Biliary Stasis as Factor in Production of Gallstones. L. R. Whitaker, Rochester, N. Y.—p. 396.
Operative Technic for Repair of Rectocele and Injury to Pelvic Floor. G. G. Ward, New York.—p. 399.
Diverticulum of Bladder. H. L. Kretschmer, Chicago.—p. 404.
*Tuberculosis of Cervix Uteri. M. Douglass and M. Ridlon, Cleveland.—p. 408.
*Osteoplastic Resection of Costal Arch for Gunshot Wounds of Spleen. H. W. Meyer, New York.—p. 412.
Four Splints of Value in Treatment of Disabilities of Hand. S. L. Koch, Chicago.—p. 416.
Spontaneous Rupture of Pyosalpinx into Urinary Bladder. S. Di Palma and M. M. Stark, New York.—p. 419.
Coincidence of Hyperplasia Endometrii and Carcinoma Corporis Uteri. C. F. Fluhmann and H. A. Stephenson, San Francisco.—p. 425.
Fatal Embolus Due to Inflation of Bladder with Air. C. P. Mathé, San Francisco.—p. 429.

Strictures of Common and Hepatic Bile Ducts.—A report of seventeen cases of stricture of the common bile duct in which operation was performed during the last four years is presented by Walters with a description of the technic used, as well as the progress in the months and years subsequent to operation. The operation of choledochoduodenostomy or hepaticoduodenostomy consisting of an end-to-side or a side-to-side anastomosis, with an accurate union of mucous membrane of the duct to that of the duodenum, has proved to be the most satisfactory operation of the group. With this method excellent results have been obtained over a period of many months and in one case of more than two years. The successful treatment of strictures of the common bile duct and the hepatic duct is dependent on the fact that sufficient duct remains proximal to the stricture to permit accurate anastomosis to an opening in the duodenum, as well as that a minimal amount of infection exists in the walls of the duct and the intrahepatic biliary passages. In one case in which there was a very large anastomotic opening between the duct and the duodenum, severe cholangeitis developed two or three months following the operation in the absence of extrahepatic biliary obstruction. It was accompanied by progressive enlargement of the liver and spleen and the formation of ascites. With the subsidence of the intrahepatic infection, jaundice and fever disappeared, but the enlargement of the liver and spleen still persisted. The ascites, however, disappeared after the administration of a mercurial

diuretic. A case is reported in which the establishment of an external biliary fistula for complete stricture of the common and hepatic ducts, and the transplantation of the coned-out fistulous tract into the duodenum, was followed by a good recovery with relief of symptoms. The fistula was transplanted, March 13, 1928, and the patient has been free of symptoms since.

Malignant Tumors of Female Breast.—Two hundred and thirty-four cases of malignant tumors of the breast are analyzed by Smith and Bartlett. Seven cases, 2.9 per cent, were diagnosed as sarcomas; the rest were carcinomas. The diagnosis was made or confirmed by microscopic examination in all but five cases, and these were clinically unmistakable. Nearly 60 per cent of the patients were between the ages of 45 and 65. A family history of malignant disease was given by 16.7 per cent of the patients. Nine patients had had previous operations on the breast, only one of which was for carcinoma so far as could be determined. Practically all of the patients complained of finding a lump in the breast. The duration of symptoms was usually under two years. Seven patients had had symptoms for more than seven years, which makes it probable that a benign tumor antedated the malignant disease. In untreated cases the course of the disease varied from one year and one month to seven years and three months. The operative mortality was 1.3 per cent. In this series 53 per cent of all traceable patients who had been operated on were alive at the end of three years; 36.9 per cent were alive at the end of five years, and 25.7 per cent were alive at the end of seven years. Of the thirteen patients known to have lived longer than ten years after operation, two died of recurrent carcinoma between eleven and twelve years after operation. Contrary to expectations, the three and five year results in those cases treated by simple amputation were practically the same as in cases treated by radical amputation, although the seven year results were not as good. In this series 83.3 per cent of class 1 patients survived the seven year interval; 28.6 per cent of class 2, and 8.6 per cent of class 3. In classes 2 and 3, the finding at operation of axillary gland metastasis affected the prognosis markedly. After postoperative roentgen irradiation, the results were uniformly better as to the gross figures, the type of operation and the degree of malignancy. In six of the seven cases of breast sarcoma, an intracanalicular or pericanalicular adenofibroma was found closely associated with the malignant tumor. Although chronic mastitis is almost a constant finding in carcinoma of the breast, it cannot be shown to have any etiologic relationship. On the other hand, there is frequent evidence that the papillary cystadenomas are often precursors of a malignant condition.

Management of Ureteral Injuries.—In Curtis' opinion uretero-ureteral anastomosis is an excellent procedure in selected cases of ureteral injury. Ureteral transplantation into the intestine, according to the technic of Coffey, is of great value in patients in whom the bladder is no longer serviceable as a urinary reservoir. Although both of these operations are of inestimable value, it must be borne in mind that the cases in which they are indicated are relatively rare.

Chordoma.—Two cases are reported by Hutton and Young: a malignant sacrococcygeal chordoma and a chordoma of the dorsal spine. The patients were aged 49 and 55 years, respectively.

Paravertebral Anesthesia in Urology.—One thousand operations on the kidney and ureter under paravertebral anesthesia are reported by Hermann and Dözsa. The disadvantages, transitory or permanent, which arise with inhalation, splanchnic or spinal anesthesia are not encountered in the use of paravertebral anesthesia. A markedly neurotic and apprehensive patient should not be selected for this form of anesthesia. There is no contraindication to the use of paravertebral anesthesia, such as a low or high blood pressure, poor renal function, cardiac lesions or pulmonary involvement. The safety of this anesthesia in the authors' experience has been absolute. Its technic is uncomplicated and easily carried out. They regard it as being the anesthesia of choice in surgery of the kidney and ureter.

Tuberculosis of Cervix Uteri.—Two cases are reported by Douglass and Ridlon, one of pantuberculosis of the pelvic viscera and one, a presumable case of primary tuberculosis of the cervix. Complete recovery of the patient followed panhysterectomy in the first case.

Osteoplastic Resection of Costal Arch for Gunshot Wound of Spleen.—Meyer recommends osteoplastic, or more properly called chondroplastic, resection of the costal arch as a great help in obtaining a good, simple, safe operative field in certain operations under the vault of the diaphragm, in diaphragmatic hernia, and in operations on the liver, the spleen (his case), and the stomach near the cardia. The operation was first described by Willy Meyer in 1906. The procedure is simple, quickly performed and safe if done with the care always necessary in surgery. The attachments of the diaphragm are not disturbed or interfered with. The procedure justified itself as it affords excellent access to the subdiaphragmatic space. The final cosmetic and functional result is good and union of the costal arch is firm.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

1: 383-430 (March 2) 1929

*Minor Orthopedics of Feet in General Practice. J. Fraser.—p. 383.
Placenta Praevia and Its Resulting Fetal Mortality. F. N. Reynolds.—p. 387.
*Investigation of End-Results of Colles' Fractures. E. D. Grasby and S.-R. Trick.—p. 391.
Aphonia and Hoarseness. C. A. S. Ridout.—p. 393.
*Estimation of Hepatic Efficiency. W. Ralston.—p. 395.
Bronze Diabetes in a Woman. G. M. W. Hodges.—p. 396.
*Local Anesthesia in Operations for Hemorrhoids and Fissure of Anus. T. H. T. Barber.—p. 397.
Cardiospasm Treated Successfully by Operation. A. C. Maconie.—p. 398.
Splenic Enlargement and Raw Spleen. H. Taylor.—p. 398.

Minor Orthopedics of Feet in General Practice.—Fraser describes two simple and efficient remedies for ingrowing toenail. The nail fold may be protected by restoring the convex nail edge, which is done by wrapping around the offending nail edge a small oval shaped piece of soft tinfoil, so arranged that a fraction of it lies on the under surface, the remainder on the nail surface. It is fastened in place by a drop of sterile glue or strong collodion. A fragment of wax is sometimes used instead of the tinfoil, but it is brittle and apt to break. While the protection is in place the ulcer is lightly packed with an alcohol solution of one of the aniline dyes, this being used because it increases the cornification of the epithelium and so stimulates the formation of the protective layer. The second remedy is sometimes known as Webb's wire, which acts by maintaining a constant separation between nail fold and nail edge.

Investigation of End-Results of Colles' Fractures.—The end-result in twenty cases of Colles' fracture is analyzed by Grasby and Trick. They say that Colles' fractures without displacement yield uniformly good results, as observed two years after the injury. When displacement was a marked feature of the fracture, the results two years after the injury are invariably unsatisfactory. The disability was in each case due to osteoarthritis in the inferior radio-ulnar joint, resulting from incomplete reduction of the fracture. Nonunion of the fractured ulnar styloid process does not affect the functional result. Emphasis is laid on restoration of anatomic apposition as important in the treatment, and a method of splinting is suggested. Grasby and Trick use two common splints, the anterior angular splint in conjunction with a straight back splint, both made of wood. This method of splinting Colles' fractures is similar to that described by Scudder, but Grasby and Trick prefer an anterior angular splint to the straight splint which Scudder uses.

Estimation of Hepatic Efficiency.—Ralston concludes that the sodium salicylate test of liver function can be of no use in classifying injured livers, or in measuring the extent of the injury.

Local Anesthesia in Operation for Hemorrhoids and Fissure of Anus.—The solution recommended by Barber is composed as follows: procaine, 0.005 Gm.; epinephrine (1:1,000), 24 minims (1.5 cc.), and physiologic solution of sodium chloride, 100 cc.

1: 431-486 (March 9) 1929

Present Position of Lead Therapy in Malignant Disease. W. B. Bell. —p. 431.
Cholecystography. T. G. Hardman.—p. 437.
Effect of Obstructed Respiration on Heart and Lungs: Clinical Importance in Radiography. G. P. Crowden and H. A. Harris.—p. 439.
Deep Submaxillary Lymph Glands. D. M. Blair.—p. 441.
Spontaneous and Artificial Pneumothorax. A. Ramsbottom.—p. 443.
*Mental Aspect of Epidemic Encephalitis. S. B. Hall.—p. 444.
Centipede in Nose. J. G. Wilson.—p. 446.
Ileo-Ileal Intussusception Due to a Fibroma. J. L. Davies.—p. 446.
Unusual Injury to Patella. E. M. R. Frazer.—p. 447.

Mental Aspect of Epidemic Encephalitis.—Of 113 patients reported on by Hall, ninety-two showed mental symptoms, at either the acute or the chronic stage. Children and young people showed a rather greater liability to mental disturbance (89.4 per cent) than did the patients of adult years (66.6 per cent). There appeared, too, a greater tendency toward the more permanent type of mental disease among children and adolescents than among adults. A resemblance was noted between patients suffering from epidemic encephalitis and those with such psychoses as manic-depressive insanity and dementia praecox. There were found to be distinct points of difference, however, between the mental disorders of epidemic encephalitis and the psychoses which they resemble. The delusional state of epidemic encephalitis is more transient and variable than that of chronic delusional insanity. The mental outlook is objective and the immobility bradykinetic in those cases which resemble melancholia, but which differ from it for those reasons. The apparent katatonia of epidemic encephalitis is rather bradykinetic and bradyphrenic than part of the introversion of dementia praecox. Cases closely resembling definite types of psychoneurosis were not of common occurrence, and apparently bore no relation to the age of the patient. Well marked psychasthenic symptoms, however, occurred in a few cases.

Lancet, London

1: 427-484 (March 2) 1929

Deviations from Standard. O. Leyton.—p. 427.
*Grave Familial Jaundice of Newly Born. A. C. Hampson.—p. 429.
*Arthritic Muscular Atrophy. A. E. B. Harding.—p. 433.
Estimation of Flocculation in Syphilitic Serums. H. W. Bayly.—p. 434.
Iodized Tincture of Guaiacol. J. Maberly.—p. 437.
Traumatic Dislocation of Right Innominate Bone. R. Warren.—p. 438.
Respiratory Action of Lobeline in Dog. S. Wright and F. R. Curtis. —p. 439.
Agranulocytic Angina. L. W. Batten.—p. 440.

Grave Familial Jaundice of Newly Born.—In the condition described as grave familial jaundice, the yellow color usually appears on the first day; the temperature is normal; the stools are normal in color; the urine contains excess urobilin and frequently bilirubin, and the liver and spleen are not usually enlarged. In untreated cases the condition is progressive and the prognosis is bad; on the other hand, seventeen out of eighteen infants treated with serum by Hampson have recovered; in the eighteenth case treatment was commenced only on the seventeenth day, a few hours before death, when the child already appeared moribund. The case cannot be regarded as one in which the treatment has failed, but serves to emphasize the gravity of the condition and the necessity for early treatment. To stress Hampson's two points: 1. Jaundice occurring within the first twenty-four hours after birth should always be regarded as serious. 2. In cases in which there is a familial history of infants dying of jaundice, even if the jaundice does not appear until the second day, it should be regarded as of equal gravity.

Arthritic Muscular Atrophy.—It is suggested by Harding that the sequence of events is as follows: The presence of the arthritis provides an abnormal stimulus to the afferent nerve endings, as a result of which the corresponding spinal center becomes unduly excitable. This causes an abnormal discharge of impulses to the muscles, and results in a condition of heightened activity, which is evidenced by the raised oxygen consumption. This state of affairs might last long after the original cause had subsided, and would account for those cases described by Charcot, in which muscular wasting was present for as long as one year after the initial injury. That there is some reflex mechanism underlying the atrophy Harding says is proved by his experiments, but the suggestion that this is reflex muscle collapse is not tenable in view of the fact that the knee jerk was present and active in all animals with an intact reflex arc, and the arthritic limbs were as freely used as the sound. In no single animal which had been in plaster-of-paris cast was there any injury, excoriation, swelling or other evidence of impaired blood supply.

1: 485-538 (March 9) 1929

*Rôle of Starvation in Treatment. E. Spriggs.—p. 485.
*Bacteriology of Uteri Removed at Operation. E. H. Lepper and M. Martland.—p. 492.
*Therapeutic Application of Acetylcholine. M. Villaret and L. Justin-Besançon.—p. 493.
Subacute Cholecystitis. W. Bain.—p. 495.
Surgery of Spleen. A. W. Sheen.—p. 497.
*Carotin and Vitamin A. T. Moore.—p. 499.
*Traumatic Aneurysm of Internal Iliac Artery. W. H. C. Romanis.—p. 500.

Rôle of Starvation in Treatment.—In discussing the dietetic treatment of obesity, Spriggs details a number of diets which he prescribes. They are ordinary mixed diets, but their quantity is lessened in measured steps, with due consideration for the fact that a certain proportion of protein, providing from 6 to 9 Gm. of nitrogen, is needed daily. The basis of the diet is meat and vegetables, but if the amounts are measured he says there is hardly any food which may not be allowed, at least in small quantities. In sufferers from constipation meat is almost entirely excluded. It is essential to teach the patient that it is the total caloric value which counts; otherwise he runs away with the idea that some foods are fattening and that others, such as fruit, toast and biscuits of protein or rye, are not, and that an obese person can be reduced by permitting this and forbidding that, irrespective of amount. In many, probably in most cases, however, if steady consistent results are to be secured, with permanent benefit to health, much work must be done day by day and week by week in measuring and varying the diet and making it conform as far as possible to the patient's own tastes. For if the particular foods given are not reasonably acceptable, the diet will be a temporary measure only and will fail of the larger object, namely, to find a regimen which the patient can manage and continue for himself. No fixed or published diet can therefore be the most suitable for any individual; his regimen must be arrived at by collaboration between the physician, the dietitian and himself, and it must be varied continually. The patient is allowed to drink water and other suitable fluids freely.

Bacteriology of Uteri Removed at Operation.—An analysis made by Lepper and Martland of forty-seven cases examined shows that forty-one cultures made from the endometrium and wall of the fundus uteri gave seventeen positive results, and thirty-seven cultures from the interior of uterine tumors gave thirteen positive results. The conformity between the cultural and the histologic observations seemed sufficiently close to warrant the belief that when an organism was grown and evidence found of inflammatory change in the tissue from which the culture was made, it was an infected uterus or tumor. On such an assessment the authors found organisms which they believed to be pathogenic in 27 per cent of the uteri and in 19 per cent of the fibroids examined.

Therapeutic Application of Acetylcholine.—Villaret and Justin-Besançon have observed that acetylcholine constitutes an absolutely remarkable treatment for profuse tuberculous sweats. In these, only small doses are required: from 0.01 to 0.02 Gm. subcutaneously or intramuscularly every day or every other day. Stronger doses may produce absolutely opposite effects. In different cases they have noticed that the injection of large doses produces an increase of intestinal peristalsis, resulting in the disappearance of habitual constipation. In lead colic, strong doses of acetylcholine (two or three injections of 0.2 Gm. every ten minutes) seem to give splendid results.

Carotin and Vitamin A.—Experiments by Moore afford support for the contention that carotin may prove active as a source of vitamin A, being effective in sustaining good growth in rats at the minute dosage of 0.01 mg. daily.

Traumatic Aneurysm of Internal Iliac Artery.—As the patient's Wassermann reaction was negative, and the aneurysm was saccular in form, while there was a perfectly clear history of a deep perineal operation on the same side for an ischiorectal abscess followed by extensive plugging, Romanis says the probability seems very strong that in some way the vessel had been injured or bruised during the latter procedure.

Annales des Maladies Vénériennes, Paris

24: 81-160 (Feb.) 1929

*Prevention and Treatment of Anaphylactic Shock in Arsenotherapy by Injection of Cesium Eosinate. Gougerot, Peyre and Bertillon.—p. 81.
Late Hereditary Syphilis of Testis. W. Berardinelli.—p. 107.
Syphilitic Chancre Without Regional Adenopathy. Gougerot and Burnier. —p. 114.

Prevention and Treatment of Anaphylactic Shock in Arsenotherapy by Injection of Cesium Eosinate.—To prevent anaphylactic shock in arsenotherapy, Gougerot et al. dissolve the arsenical preparation to be used in from 5 to 20 cc. of a 10 per cent solution of cesium eosinate, immediately before its administration. For the treatment of the anaphylactic reaction they inject from 5 to 10 cc. of the same solution of cesium eosinate intravenously. Both methods proved to be efficient; they failed to get good results in only three of the fifty cases reported. They think that the antianaphylactic effect of the cesium eosinate is due to its property to inhibit the blood flocculation (which last is the cause of anaphylactic shock), and therefore it may be used with the same results also in anaphylactic reactions occurring during mercury or bismuth treatment.

Bulletins et Mém. de la Soc. Nat. de Chirurgie, Paris

55: 245-273 (Feb. 23) 1929

Treatment of Pott's Fracture. Boppe and Vassitch.—p. 247.
*Evulsion of Radial Nerve at Elbow. J. C. Bloch.—p. 255.
Cranioplasty After Trepanation for Subdural Hematoma. C. Cornioley. —p. 259.
Treatment of Wounds by Diffuse Electrolysis. Planque.—p. 263.
Local Vaccination in Cancer of Uterine Cervix. M. Aitoff, S. Fabre and H. Hartmann.—p. 268.

Evulsion of the Radial Nerve at Elbow.—Bloch reports a case of evulsion of the radial nerve in a boy, aged 15, who had sustained a severe injury of the axilla in a motorcycle accident. The vasculonervous plexus was completely exposed for a distance of 8 cm. and a segment of the evulsed radial nerve, 25 cm. long was found protruding out of the lacerated wound and hanging free on the chest wall. At operation it was found that the evulsion had occurred at the anterior aspect of the elbow joint. The proximal, evulsed part of the nerve was passed under the triceps brachii and then under the supinator longus and finally sutured to the distal end. Four months after the operation iodine ionization treatment was started in the arm; the first signs of regeneration of the nerve were observed five months later, and one year and a half after the accident the regeneration was complete. All the movements became normal, with the exception of abduction of the wrist and of the thumb.

Gynécologie et Obstétrique, Paris

19: 1-80 (Jan.) 1929

*Tuberculous Meningitis in Pregnant Women. A. Couvelaire and M. Lacomme.—p. 1.
*Epidural Anesthesia in Obstetrics. J. R. Henry and L. Jaur.—p. 19.
*Fatal Intra-Abdominal Hemorrhage at End of Pregnancy, Caused by Extra-Uterine Decidual Vegetations. B. J. Kouwer.—p. 34.
Extraction of Female Sex Hormones and Results of Folliculinotherapy. Serdukoff.—p. 39.
*Surgical Reconstruction of Female Urethra. J. Pérard.—p. 56.

Tuberculous Meningitis in Pregnant Women.—Couvelaire and Lacomme report four cases of tuberculous meningitis in pregnant women. In two of them there were no pulmonary lesions. The disease developed in all cases after the fifth month of pregnancy and was not easily recognized. In one case it was mistaken for eclampsia. In only one case was there a spontaneous premature delivery of a six months fetus, the other infants were delivered by means of cesarean section (post mortem in one case). The infants either were born dead or died shortly after birth; one died from congenital tuberculosis; in the other one, tubercle bacilli were found in the liver. Because in such cases there is greater danger of transplacental infection of the fetus than in other forms of tuberculosis, the authors insist on delivery by means of cesarian section as soon as the infant is viable.

Epidural Anesthesia in Obstetrics.—Henry and Jaur report twenty deliveries under epidural anesthesia. They consider that this kind of anesthesia is safer and that it gives better results than general and spinal anesthesia, because of the absence of shock and of general disturbances and of its longer duration (from two to three hours). High epidural anesthesia has somewhat limited indications, because of the considerable and prolonged relaxation of the whole uterus which it causes and which may give rise to hemorrhage. It is used only when the condition of the patient requires interruption of the labor for a few hours, or when obstetric interventions (internal or external version, or operation on the fetus) are made too difficult by excessive uterine tonicity or uterine contractions. Low epidural anesthesia, on the contrary, is harmless and because it produces complete anesthesia and good relaxation of the perineum, vulva, vagina, levator ani muscle and cervix, it may be used in any case in which it is desirable to obtain an almost painless dilatation of the cervix and expulsion of the fetus and of the placenta, especially in forceps delivery and in the perineorrhaphy.

Fatal Intra-Abdominal Hemorrhage in a Pregnant Woman, Caused by Extra-Uterine Decidual Vegetations.—Kouwer reports a case of fatal intra-abdominal hemorrhage in a primipara, aged 39, that occurred at the end of pregnancy. At laparotomy the cause of the hemorrhage was found in the vascular decidual vegetations on the posterior aspect of the uterus, on the ovaries, on the appendix and on the adjacent peritoneum; neither ruptured vessels nor rupture of the uterus was found; the placenta was normal; the fetus was dead. Though the patient had not had symptoms of intoxication during the pregnancy, there was extensive degeneration and necrosis of hepatic cells similar to that observed in fatal eclampsia. Therefore, the author thinks that, notwithstanding the good condition of the patient during pregnancy, there was some kind of intoxication that caused an excessive fragility of the vascular walls in the decidual vegetations and thus made them bleed easily.

Surgical Reconstruction of Female Urethra.—Pérard describes Marion's technic for the reconstruction of the female urethra by means of a tubular graft made with a flap of vaginal mucosa wrapped around a catheter and fixed in the subpubic tissue, extending from the preclitoric region up into the bladder. Good results were obtained in five cases.

Journal de Chirurgie, Paris

33: 1-144 (Jan.) 1929

*Surgical Treatment of Cerebral Tumors. T. de Martel.—p. 1.
Duodenojejunostomy. Boppe.—p. 20.
*Regional Anesthesia of Extremities by Means of Intravenous Injections. P. Cahen.—p. 34.

Surgical Treatment of Cerebral Tumors.—De Martel gives a description of some improvements of his technic that in the last ten years lowered the mortality in brain surgery from 60 per cent to 20 or 25 per cent. He always operates under local anesthesia and the patient sits in a special surgical chair with the head completely immobilized by means of special head supports not interfering with the operative procedure, because the asphyxiating effect of the general anesthesia and the low position of the head increase the venous hemorrhage. For the protection of the operative field he uses a special impermeable, antiseptic varnish applied on the shaved skin around the operative field. For hemostasis he uses continuous irrigation of the operative field with warm sodium chloride solution and small pieces of fresh muscles aseptically secured during the operation from an anesthetized rabbit by an assistant. These pieces of muscle are said to have an unusual hemostatic property and are easily absorbed. For the opening of the skull he uses Cushing's technic, but for the operations on the cerebellum his first step is the excision of the posterior arch of the atlas, after which, by means of cutting bone forceps ("pince-gouge") introduced into the foramen magnum, he gradually excises the amount of occipital bone necessary for the exposure of the cerebellum, proceeding upward and laterally from the foramen magnum.

Regional Anesthesia of Extremities by Means of Intravenous Injection of Procaine Hydrochloride Solution.—Cahen used this kind of anesthesia in thirty operations of various kinds (mostly bone operation) on the inferior and superior extremities. After the exposure of one of the superficial veins (at the bend of the elbow) or of one of the saphenous veins, the extremity is exsanguinated by means of an

elastic bandage (Esmarch); then a tourniquet is applied proximally to the exposed vein and a solution of procaine hydrochloride is injected into the emptied veins, toward the distal end of the extremity, against the normal venous circulation. The needle used for this purpose has an olive-shaped tip, thus permitting one to tie the vein to the needle during the injection of the anesthetizing solution. With from 25 to 90 cc. of a 0.5 per cent solution of procaine hydrochloride, anesthesia is induced in from five to ten minutes. The only contraindications to this anesthesia are acute septic inflammations of the extremities and sclerosis of the veins.

Paris Médical

1: 201-232 (March 2) 1929

Syphilis in 1929 (Review). G. Milian and L. Brodier.—p. 201.
*Disturbances of Nervous System, Caused by Scars Remaining After Visceral Syphilis. P. Gougerot.—p. 209.
Relation Between Syphilis and Lupus Vulgaris. Hudelo and Rabut.—p. 212.
*Heredosyphilitic Meningitis. H. Eschbach.—p. 217.
Spirocheticidal Action of Tellurium in Syphilis. Guénot.—p. 218.
Heredosyphilitic Dystrophy in Form of Spina Bifida Occulta in Coccygeal Region. A. Touraine and L. Marceron.—p. 220.
*Mercuric Cyanide Treatment of Acute Syphilitic Nephritis. G. Petges, P. Joulia and R. David-Chaussé.—p. 224.

Disturbances of Nervous System, Caused by Scars Remaining After Visceral Syphilis.—Gougerot reports two cases of epilepsy that occurred in syphilitic patients after the syphilis was cured. In the first instance a woman with latent syphilis had daily epileptic attacks, which were cured by antisyphilitic treatment, but which reappeared two years later and this time were not at all influenced by the antisyphilitic treatment, being ameliorated only with bromides and phenobarbital. The second patient, a man, several years after he was cured (by malaria therapy) of paresis, developed typical attacks of jacksonian epilepsy, not modified by antisyphilitic treatment. Both patients at the time of the occurrence of these secondary epileptic attacks had neither clinical nor laboratory syphilitic disturbances, and in both antisyphilitic treatment was of no avail; therefore the author believes that these disturbances of the nervous system were caused by scar formation of the site of previous syphilitic lesions.

Heredosyphilitic Meningitis.—Eschbach reports a case of an unusual form of heredosyphilitic meningitis in a girl, aged 3. The child was born at term and was apparently healthy until one day she began to complain of vertigo and acute stabbing pains in the legs and in the neck; she did not want to leave the bed, was very excited and several times daily had attacks of generalized hyperhydrosis and vertigo. Disturbances of reflexes, paralysis and fever were absent; the liver was slightly enlarged; there was increased albumin and 800 lymphocytes per cubic millimeter in the spinal fluid, and the Wassermann reaction, both in the spinal fluid and in the blood, was positive. The father's Wassermann reaction was also positive. All symptoms subsided rapidly under antisyphilitic treatment.

Mercuric Cyanide Treatment of Acute Syphilitic Nephritis.—Petges et al. report three cases of acute syphilitic nephritis in patients with primary syphilis. The albuminuria (up to 77 Gm. of albumin per liter) disappeared after about fifteen days of treatment by intravenous injections of from 0.005 to 0.02 Gm. of mercuric cyanide, and thus the use of arsenic and bismuth, contraindicated in the presence of albuminuria, was made possible. Of all the mercury preparations mercuric cyanide is the one that in addition to its spirocheticidal properties has a marked diuretic effect and is well tolerated by the kidneys; therefore the authors think that it should be the medication of choice in cases of syphilitic albuminuria.

Presse Médicale, Paris

37: 265-280 (Feb. 27) 1929

*Nonexistence of Simple Catarrhal Jaundice. M. Garnier.—p. 265.
Hemophilic Hemorrhages. P. Émile-Weil.—p. 266.
*Pruriginous Type of Scarlet Fever. L. Lortat-Jacob.—p. 267.
*Relation Between Cholesterinemia and Thyroid Disturbances. G. Laroche.—p. 268.
Serous Cyst of Sigmoid Mesocolon. G. Hubner.—p. 270.

Nonexistence of Simple Catarrhal Jaundice (Icterus Catarrhalis).—Garnier suggests that the term acute apyretic jaundice be substituted for the term catarrhal jaundice, because of the unsettled pathogenesis of this disease. In fact, catarrhal icterus means an icterus caused by inflammation of the mucous membrane of the bile ducts; but the experimental injections of various pathogenic micro-organisms into the common bile duct cause angiocholitis, not jaundice. On the contrary this kind of icterus is caused not by local inflammation of the biliary ducts but by a mild general infection with some pathogenic micro-organisms with high hemolytic power, which not only increase the bile production by mass destruction of the erythrocytes but deviate the bile current by some sort of chemotropism. The clinical picture of catarrhal jaundice and the discordance between the jaundice and the acholic stools in its course support this conception of the pathogenesis of this disease.

Pruriginous Form of Scarlet Fever.—Lortat-Jacob tries to isolate a new atypical form of scarlet fever (pruriginous). It is a benign form, usually without any pharyngeal disturbances of merely slight dysphagia and some redness of the pharynx on the eve of the eruption. The pulse is accelerated (up to 100), not corresponding with the normal temperature that usually is observed during the disease, after a slight initial rise in the temperature (from 37.8 to 38.5 C., or 100 to 101.3 F.); a typical scarlatiniform skin eruption is accompanied by severe pruritus, with exacerbation at night and after the ingestion of hot drinks or food; the desquamation is slight. Because of the pruriginous eruption and the absence of fever and of pharyngeal symptoms, the disease is apt to be mistaken for some noncommunicable scarlatiniform skin disease, as it was in the case reported by the author, in which another, nonisolated child of the family was infected and developed typical scarlet fever.

Relation Between Cholesterinemia and Thyroid Disturbances.—Laroche studied the cholesterinemia in twenty-three cases of exophthalmic goiter in which the basal metabolism was increased (from +70 to +19). In fourteen cases it was normal; there was no relation between the metabolic rate and the cholesterinemia, but it increased in direct relation with the gravity of the general condition of the patient, and therefore its determination may be of considerable prognostic value. In three cases of hypothyroidism the cholesterinemia was considerably decreased.

Schweizerische medizinische Wochenschrift, Basel

59: 145-168 (Feb. 16) 1929

Clinical Significance of Lymphatism. E. Feer.—p. 145.
*Cisterna Puncture During Childhood. Fanconi.—p. 149.
Differential Diagnosis Between Miliary Tuberculosis and Miliary Carcinosis of Lungs. W. Gloor.—p. 151.
*Primary Sclerosis in Axilla. I. Daïnow.—p. 158.
*Increase in Cancer Mortality. H. Hunziker-Kramer.—p. 159.
Medical Problems in Sports. W. Knoll.—p. 164.

Cisterna Puncture During Childhood.—Fanconi points out that although most authorities still prefer lumbar puncture to cisterna puncture, the latter is in some cases to be preferred. In collaboration with others at the children's hospital in Zurich, he performed numerous cisterna punctures without observing serious complications. A cisterna puncture should be made when an exact examination of the cerebrospinal fluid is necessary, because the fluid obtained by this method is less often mixed with blood, than that obtained by lumbar puncture. If diagnosis or treatment necessitate the extraction of fluid, and if lumbar puncture fails to give the desired results, cisterna puncture should be resorted to. Cisterna puncture is also indicated in cases of high intracranial pressure, particularly in cerebral tumors. In cases of glioma of the cerebellum which are relatively frequent during childhood, cisterna puncture is less dangerous than lumbar puncture. The difference in pressure which is caused by lumbar puncture frequently forces parts of the cerebellum into the foramen magnum and in this manner gives rise to symptoms of compression. Cisterna puncture is advantageous for encephalography because it permits the introduction of air directly into the ventricles of the brain. Concerning the technic of cisterna puncture, Fanconi states that the patient should be lying down with slightly bent head. Light narcosis is indicated if the patient is restless.

Primary Sclerosis in Axilla.—Among 318 patients with primary syphilitic infections, Daïnow observed only five with extragenital chancres. Of these he reports one case as of special interest. A primary chancre was found in the axilla. The microscopic examination showed *Spirochaeta pallida* in unusu-

ally large numbers. The Wassermann reaction was positive. A general examination also revealed a syphilitic roseola. This case was characterized by a high degree of infectiousness. Even the perspiration contained large numbers of spirochetes.

Increase in Cancer Mortality.—Many authorities are of the opinion that the incidence and mortality of cancer have increased in recent years. Hunziker-Kramer discusses the different factors which have to be considered in compiling statistics concerning cancer mortality. He summarizes them as follows: 1. Cancer is particularly a disease of the aged. 2. The groups combining the higher ages have been much larger in recent years than previously. 3. The question whether cancer causes more deaths now than in former years can be decided only if this increase in the groups comprising the older people is taken into consideration. 4. The author observed that in Basel during the last twenty-five years the actual increase in cancer mortality was 20 per cent for men and 6 per cent for women. However, this increase affected only the age groups over 55. 5. The percentage of fatalities from cancer increased with every higher age group. The assertion, frequently found in the literature, that people over 70 are comparatively free from cancer could not be verified. The statement that cancer is more frequent among women than among men was not true with regard to Basel.

Gazzetta degli Ospedali e delle Cliniche, Milan

50: 1-32 (Jan. 6) 1929

New Type of Subhepatic Appendicitis. I. Tansini.—p. 1.
*Hereditary Transmission of Tuberculosis: Marriage of Tuberculous Persons. P. Rotteglia.—p. 3.
Bronchiolitis Obliterans. Sackheim.—p. 8.

Hereditary Transmission of Tuberculosis: Marriage of Tuberculous Persons.—With a view to securing data that would help to explain various matters pertaining to tuberculosis in general, Rotteglia, aided by Prof. Zampa, studied a large number of genealogical trees, comprising about 200 families and covering usually four or five generations. From his statistical studies, he reaches what he regards as a very evident and irrefutable conclusion; namely, that tuberculous parents may influence, and almost always do influence, their offspring in an unfavorable manner. The influence may be direct or indirect (family environment). It is evident also that one spouse often infects the other, and that the wife becomes more readily infected than the husband. The author thinks that these observations should give strong support to the crusade in Italy in favor of tuberculosis prophylaxis. If normal prophylactic measures could be generally introduced, the practical result would be that the problem of the hereditary transmission of tuberculosis would be solved.

Policlinico, Rome

36: 1-40 (Jan. 7) 1929. Practical Section

Examination of Spinal Column. E. Venezian.—p. 3.
*Laparotomy Incision of Choice for Right Side of Abdomen. S. Solieri.—p. 8.
Case of Postdiphtheritic Paralysis: Cure Effected by Antidiphtheritic Serotherapy in High Doses. L. Tanzi.—p. 10.

Laparotomy Incision of Choice for Right Side of Abdomen.—Solieri establishes six criteria, or requirements, for a laparotomy incision in the right side of the abdomen: (1) easy exploration of the right iliac fossa and of the gallbladder, duodenal and pyloric regions; (2) easy execution in these regions of the necessary operations; (3) minimum of time required in the dieresis and synthesis of the walls; (4) ready reconstruction of the layers of the abdominal walls; (5) strength of the subsequent scar, and (6) cosmetic considerations. After many trials and experiments, Solieri now uses the following incision: First stage: Incision of the skin between the inner two thirds and the outer third of the rectus abdominis, from two fingerbreadths above the costal arch down to the lower portion of the right iliac fossa. Incision of the anterior sheath of the rectus muscle throughout the length of the line; longitudinal incision of the tendinous inscriptions and blunt separation of the fibers of the rectus muscle. Second stage (for appendectomy, operations on Lane's kink, and Jackson's membrane): Transverse incision of the peritoneum down to the semilunar fold of Douglas. The opening may be lengthened as much as desired beneath the two separate masses of the rectus muscle, and additional space may be secured by the use of retractors. When the necessary operations in the right iliac fossa have been performed, one need only lift with tenaculum forceps the inner margin of the incised rectus, whereupon the edges of the incision are brought together and the wound closes of its own accord. With a few stitches, the suturing is done in a moment. Third stage (for cholecystectomy, cholecystostomy, cholecystolysis, exploration of the duodenum, the head of the pancreas, the pylorus, and the pyloric antrum): oblique incision of the fibers of the transverse muscle and of the peritoneum from the superior internal angle of the space back of the rectus abdominis, with a somewhat divergent rectilinear course from the costal arch downward and outward to the intersection of the inner fibers of the rectus muscle.

Riforma Medica, Naples

45: 37-67 (Jan. 12) 1929

Liver Therapy: a Question of Priority. A. Chillà.—p. 39.
Constitutional Venous Hypertension as Determining Factor of Orthostatic Albuminuria. G. Santucci.—p. 43.
*Significance of Eosinophilia in Tuberculin Therapy Applied to Children. N. Santangelo.—p. 50.

Significance of Eosinophilia in Tuberculin Therapy Applied to Children.—Santangelo concludes: Tuberculin, applied percutaneously, induces in tuberculous children an increase of eosinophils in the blood. The increase is proportionate to the intensity of the cutaneous reaction provoked by injection of tuberculin, and does not occur if the reaction is absent. Cutaneous inflammations brought about by a specific means provoke only a slight increase of eosinophils, which cannot be compared with that produced by the injections of tuberculin. The eosinophilia is a favorable prognostic index in tuberculosis in children and may serve as a guide during the application of tuberculin therapy. The percutaneous route for the introduction of tuberculin for a curative purpose appears preferable to the subcutaneous and intracutaneous routes, as it is of easier and more practical application and sufficient immunization is obtained without the dangers of general reactions and too extensive foci of reaction, which were encountered when the other methods were employed.

Archivos de Cardiología y Hematología, Madrid

10: 1-40 (Jan.) 1929

*Angina Pectoris Treated Surgically by Suppression of Pressor Reflex (Cervical Sympathectomy). M. Vela.—p. 1.
*Instability of Erythrocytes in Splenectomized Animals. E. B. Troilo.—p. 10.

Angina Pectoris Treated by Cervical Sympathectomy.—In four cases of angina pectoris which were treated by cervical sympathectomy, Vela obtained excellent results in three cases and a fair result in one case. One patient is still in excellent condition nineteen months after the operation. In this patient and in two others operated on later, the attacks of angina have diminished in intensity and in duration. Cervical sympathectomy improved the angina pectoris in one patient, but did not affect the arteritis obliterans; in fact, it was intensified. Amputation of one leg was performed later. The sensory disturbances after operation in two patients were of long duration. The electrocardiographic changes were interesting. In the first case the reverse T wave in lead I became positive after operation. In the second case the inversion of the T wave in leads II and III improved after the operation and in the third case the reverse T wave in lead III became positive after the operation.

Instability of Erythrocytes in Splenectomized Animals.—In his studies on normal and splenectomized guinea-pigs, Troilo found that the erythrocytes of splenectomized guinea-pigs seven months after splenectomy are like those of normal guinea-pigs, though a hematologic syndrome of chlorosis may be observed. After splenectomy there is some anemia which disappears slowly, and a hyperleukocytosis, which persists. This confirms the theory of the inhibitory effect of the spleen on leukogenesis. The most important fact is that, whereas the blood count in normal guinea-pigs is uniform, there is a considerable irregularity in the blood count of splenectomized guinea-pigs.

Semana Médica, Buenos Aires

36: 301-360 (Feb. 7) 1929

*Acute Appendicitis of Syphilitic Origin. D. A. Pasqualis.—p. 301.
Structure of Myocardium and Auriculoventricular Conduction System. P. Rojas.—p. 304.
Experimental Cystoscopy. D. Barilari and P. Moreyra Bernan.—p. 340.
Fibromas of Uterine Cervix. E. L. Vila and T. Schlossberg.—p. 344.
Male Pseudohermaphrodism. N. Marín Moreno and M. de la Fare.—p. 348.

Acute Appendicitis of Syphilitic Origin.—Pasqualis reports two cases of appendicitis in a brother and a sister, aged 25 and 20, respectively. In the latter the Wassermann reaction was positive, and in both patients antisyphilitic treatment gave good results. The author believes that there was a close relation in these cases between syphilis and the appendicitis. He emphasizes, however, the necessity of operation in all these cases.

Archiv für Kinderheilkunde, Stuttgart

86: 161-240 (Feb. 22) 1929

Influence of Home and Institutional Training on Child's Character. F. Hamburger.—p. 161.
*Function of Appendix. J. Siegl.—p. 171.
Simulation of Pneumothorax by Thoracic Rickets. J. Siegl.—p. 173.
Diagnosis of Dermatomyositis. H. Lehmkuhl.—p. 179.
*Diphtheria Carriers. A. Kollmann.—p. 185.
Biology of Vagina in Infants. G. Abraham.—p. 211.

Function of Appendix.—In a girl, aged 2½ years, Siegl diagnosed pneumonia accompanied by symptoms of a so-called pseudo-appendicitis. He then observed the function of the appendix by roentgen examination and found that all the symptoms of appendicitis disappeared with the symptoms of the lung disease. In children with healthy intestines, it was observed that in 75 per cent of all cases the appendix filled up with the contrast meal and emptied before or at the same time as the cecum and the adjoining parts of the ascending colon. In cases of appendicitis or other diseases of the cecal region, the appendix showed, besides fixations, distortions and displacements, an isolated permanent fulness which lasted after all other parts of the intestine had been emptied. If this evacuation became normal at the spontaneous recovery from pneumonia, the author considered it only a symptom of the latter. In the reported case of pneumonia, the first roentgenogram revealed a filling of the appendix that persisted forty-eight hours after the evacuation of the intestine, which was functioning normally. Later investigations showed the same filling of the appendix but its evacuation occurred at the same time as that of the intestine.

Investigations of Diphtheria Carriers.—Kollmann reports statistics on diphtheria carriers. Among 3,062 children admitted in the period from 1920 to 1928, 418, or 13.6 per cent, were bacteria carriers. Younger infants are most frequently carriers. In autumn, winter and spring, the number increased. Unhygienic housing conditions produced a high percentage of diphtheria carriers. Children with digestive disturbances, exudates or nasopharyngeal diseases were particularly often affected. The increase of diphtheria bacilli was followed by an increase of morbidity within one month, while a decrease in the number of carriers was followed after about a month by a decrease in the cases of diphtheria. Thirty-eight per cent of new-born infants are carriers. The best treatment was found to be isolation of the carriers and the application of 2 per cent silver nitrate solution.

Deutsche medizinische Wochenschrift, Berlin

55: 213-256 (Feb. 8) 1929

Neurosis and Individual Psychology. A. Adler.—p. 213.
*Nature of Reticulo-Endothelial System. R. Jaffé.—p. 215.
*Pathogenesis of Pernicious Anemia. J. Meinertz.—p. 218.
*Mercury Intoxication from Dental Fillings. O. Müller.—p. 221.
*Aids in Roentgenologic Study of Gastric Function After Gastro-Enterostomy. N. A. Podkaminsky.—p. 221.
Hysterosalpingography. Will.—p. 222.
*Early Symptom of Tuberculous Meningitis. K. Ochsenius.—p. 224.
*Guttadiaphot Reaction in Skin Diseases. B. H. U. Mohrmann and F. Blut.—p. 225.
*Flocculation Reaction of Syphilitic Cerebrospinal Fluid. R. Schnitzer.—p. 228.
Apparatus for Galvanic Current. M. Kaufmann.—p. 230.
*Quartz Light for Deficient Milk Production. H. Flesch and F. Karniss.—p. 231.
Leukemic Blood Picture During Puerperium. E. Wiener and C. Freier.—p. 232.

Nature of Reticulo-Endothelial System.—In a review of the work of others and of workers in his own laboratory, Jaffé questions the entity as a definite tissue system of the reticulo-endothelial system, in the sense postulated by Aschoff. Morphologic entity is denied. The physiologic function of vital storage, the one criterion which places a given cell type in the system, may theoretically be dependent on the physicochemical character of the stored material; on specific intracellular function, or on the blood supply, the last named factor mediating the degree of contact between cell and material to be stored, on which intimacy the actual taking up of material may depend. Under the usual experimental conditions both the kinds of materials stored and the types of cells which store such materials seem to be characteristic. But under altered experimental conditions, especially those which change the velocity of blood flow, and under pathologic conditions, materials not usually stored may be removed from the circulation and often by cells other than those which alone normally seem to possess this function. Jaffé ascribes a greater degree of activity to ordinary capillary endothelium than most others will admit. He concludes that the so-called reticulo-endothelial system is not a true tissue system either morphologically or physiologically, but that the supposedly specific function of vital storage belongs to what he terms the active mesenchyme as a whole, and that the elements of the mesenchyme may function vicariously.

Pathogenesis of Pernicious Anemia.—Meinertz discusses the pathogenesis of pernicious anemia in the light of the effects of certain therapeutic measures, namely, blood transfusion, splenectomy and liver administration, which have proved practically most useful. After repeated blood transfusions the erythrocytes of the patient are almost entirely those of the donor, in spite of the fact that erythropoiesis continues. This would indicate that the red blood corpuscles of pernicious anemia are more readily destroyed than are normal erythrocytes. Since both donor and recipient corpuscles are subjected to the hemolytic action of the same serum, that of the patient, the interpretation must be sought in the formation by the bone marrow of corpuscles of decreased resistance. The beneficial action of splenectomy depends on the loss of the normal function of this organ in the removal of injured or worn out erythrocytes produced in pernicious anemia by an abnormally functioning bone marrow. Liver therapy causes a more nearly complete restoration of the blood picture to normal than do the other procedures discussed. The preponderance of megalocytes after liver administration gives a blood picture similar to that of spontaneous remission. Whether the action of liver is specific it is not possible to say, but the substance appears to act directly on the abnormal bone marrow, causing it to produce erythrocytes which more closely approach in resistance normal red blood corpuscles.

Mercury Intoxication from Dental Fillings.—In the case reported by Müller there was well marked secondary anemia, with shortness of breath and edema of the ankles on exertion. Chemical examination of the stools showed the presence of mercury in an amount equal to 0.0004 Gm. for the twenty-four hour period. Occupational contact with mercury, lead or other heavy metals could be excluded, as could also the therapeutic administration of drugs containing these elements. The only possible cause of the intoxication was held to be a number of copper amalgam fillings which the patient had in his teeth. Evidence of electrolysis was marked, especially in one of the amalgam fillings which was in contact with a gold filling. Although slight grades of mercury intoxication from amalgam dental fillings have been reported, the author believes that his is the only case in which the intoxication was severe enough to cause secondary anemia.

Aids in the Roentgenologic Study of Gastric Function After Gastro-Enterosotomy. — Podkaminsky previously reported that epinephrine causes closure of the pylorus, the gastro-enterostomy stoma remaining patent. He now states that pituitary extract has the reverse action, causing the stoma to close through contraction of the musculature of the body of the stomach, whereas the pylorus remains open. He believes that by the use of these two agents it is possible, through roentgenologic study, to gain a more accurate conception of

the relative functions of pylorus and stoma after gastro-enterostomy than is otherwise possible.

Early Symptom of Tuberculous Meningitis.—As one of the earliest symptoms of tuberculous meningitis in children, Ochsenius describes the occurrence of temporary speech difficulties. Transient attacks of aphasia or dysphasia have been noted by him in several instances several weeks before symptoms of meningeal irritation developed. He suggests the possibility of involvement of the speech center in the early stage of tuberculous bacteremia.

Guttadiaphot Reaction in Skin Diseases.—This reaction, proposed as a simple procedure which might replace the Wassermann reaction, was tried by Mohrmann and Blut in a wide variety of skin diseases as well as in syphilis. The results are subject to variations, arising from atmospheric moisture and other not readily controlled factors. In spite of great care in its performance the reaction yielded variable results, not only in syphilis but also in the various groups of dermatologic diseases studied. It cannot be considered specific for any disease.

Flocculation Reaction of Syphilitic Cerebrospinal Fluid.—The modification of the Meinicke flocculation reaction for syphilis proposed by Untersteiner, who used 2 per cent sodium chloride solution as a diluent, was applied to syphilitic spinal fluid by Schnitzer. The results were somewhat less certain and reliable than those obtained by the Wassermann reaction. Addition of colloidal turpentine and syphilitic liver extract made the flocculation reaction as delicate and sensitive as the Wassermann reaction.

Quartz Light for Deficient Milk Production.—In twenty cases of hypogalactia Flesch and Karniss resorted to ultraviolet irradiation. Stolte and Wiener have reported uniformly excellent results from this treatment of the breasts of twenty nursing mothers with deficient milk production. Massage and complete emptying of the breasts preceded each daily application of the rays. Treatment was begun with a lamp distance of 80 cm. and an exposure of from three to five minutes to each breast, the time being increased from two to three minutes daily until a maximum of from twenty to thirty minutes was reached, the maximum exposure being determined by the degree of erythema produced.

Deutsche Zeitschrift für Chirurgie, Leipzig

214: 341-428 (Feb.) 1929

*Significance of Kahn Albumin-A-Reaction as Aid in Diagnosis of Malignant Tumors. M. Fleck.—p. 341.
Appearance of Gastric Mucosa in Roentgenogram. H. Chaoul.—p. 351.
*Surgical Treatment of Ulcer and Carcinoma of Stomach (in König's Clinic, During 1922-1926). A. Oberniedermayr and E. Stahnke.—p. 387.
Genesis and Treatment of Postoperative (Reflex) Anuria and Ileus. Boeminghaus.—p. 406.
Large Diverticulum of Sigmoid Associated with Malformations of Female Internal Genitalia. Papayoannou.—p. 417.

Diagnosis of Malignant Tumors by Means of Kahn Albumin-A-Reaction.—This reaction was employed by Fleck in 102 cases of malignant tumor with sixty-nine positive and five doubtful results. The positive reactions occurred in cases in which metastases had developed or in which cachexia was well developed. The twenty-eight negative results were obtained in cases in which the disease apparently had not advanced to the stage of metastasis or cachexia. In a group of 262 non-malignant cases, the reaction was positive fifty-six times, negative 189 times and doubtful seventeen times. In the positively reacting group were cases of progressing pulmonary tuberculosis, acute infections such as pneumonia, and severe cases of arteriosclerosis. Fleck does not regard this reaction as specific for carcinoma but rather a reaction of the lability of serum albumin.

Peptic Ulcer and Carcinoma of Stomach.—Oberniedermayr and Stahnke analyze 170 cases of gastric ulcer, forty-seven cases of duodenal ulcer and 237 cases of carcinoma of the stomach, without, however, venturing any opinions. The study was made solely for the purpose of placing it on record and to encourage other clinicians to do likewise, so that eventually the extraordinarily large amount of material and number of cases might make it possible to draw definite conclusions on many moot points. In all the cases of ulcer the largest number occurred in the years from 30 to 60, with little difference between the three decades. However, for the cases of duodenal ulcer alone, the decade from 20 to 30 gave 42.5 per cent of the cases, as against 14.2 per cent for the combined group of ulcers, and the fifth decade gave only 4.2 per cent as against 23.6 per cent for the combined group. As to duration of the ulcer: 78.2 per cent of the combined group of ulcers had been present more than two years, as against 63.8 per cent of the duodenal ulcers. It is noticeable that there is great variability in each decade for each of the five years as to numbers of cases as well as duration. The same is true of the symptomatology. The outstanding symptoms were pain after eating, belching, vomiting, loss of weight and constipation. A family history of ulcer was obtained in from 5 to 14.7 per cent of the cases in the various years. The outstanding symptom in duodenal ulcer was vomiting. It was present in 52 per cent of the cases. Belching was present in 46.8 per cent of the cases. Constipation was present in only 27.6 per cent and pain after eating in 25.5 per cent; there was loss of weight in 23.4 per cent. The results of chemical examination of the stomach contents showed normal total acids in 31.9 per cent of cases; normal free hydrochloric acid in 30.8 per cent; increased total acids and free hydrochloric acid in 18 and 16.9 per cent, respectively; decreased hydrochloric acid in 14.3 per cent, and lactic acid in 3.9 per cent. Operative procedures have evolved themselves into two methods; first, resection, which is the method of choice, and gastro-enterostomy, which is performed only when anatomic relations do not permit resection. Then, the anterior gastro-enterostomy of Braun is performed because it gives better and easier access to a recurrent peptic ulcer than does the posterior gastro-enterostomy. The figures for gastric carcinoma also show great variability during the five year period of observation. The chemical examination is interesting in that it showed averages of 41 per cent with anacidity; 23 per cent with lactic acid; 18 per cent with blood in the stool; 8 per cent with high values and 3 per cent with low acid values. A tumor was palpable in 60 per cent; ascites was present in 8 per cent. The prepyloric region was most often the seat of the tumor. The occurrence of metastases had diminished from 50 per cent in 1922 to 17 per cent in 1926. The operation of choice is resection by the Reichel-Polya method. Gastro-enterostomy (anterior) was done in about one fourth of the cases. The immediate mortality has not varied much: the figures are 17, 20, 18, 20 and 19 per cent, respectively, for the five year period. The principal causes of death were peritonitis, pneumonia and cachexia.

Klinische Wochenschrift, Berlin

8: 385-432 (Feb. 26) 1929

Pathogenesis of Cardiac Insufficiency. H. Schwarz.—p. 385.
Scarlet Fever Problem. Bürgers.—p. 388.
Idem. U. Friedemann.—p. 390.
Insulin in Relation to Glycemia. O. Loewi.—p. 391.
Fixation of Gold Preparations by Tissues of Body. W. Heubner.—p. 393.
Comparison of Natural Alopecia and Thallium Alopecia. A. Buschke and A. Joseph.—p. 397.
Relation Between Blood Sugar Content and Blood Pressure. F. Kisch.—p. 400.
*Size of Heart in Participants in Olympic Games at Amsterdam. H. Herxheimer.—p. 402.
*Spleen Therapy in Polycythemia. U. Friedemann and H. Deicher.—p. 404.
Hemolysis Following Transfusion of Blood from Universal Donor to a Person Belonging to Group Two. R. Boller.—p. 404.
Antirachitic and Arterial Effects of Irradiated Ergosterol. W. Heubner.—p. 407.
Nature of Factor Which Prevents Pellagra in Rats. W. Kollath.—p. 408.

Size of Heart in Participants in Olympic Games at Amsterdam.—To determine whether the heart in athletes is larger than in other persons Herxheimer examined 196 participants in the Olympic games at Amsterdam. Roentgenograms with a time exposure of one and two-tenths seconds were made at a distance of 2 meters. The pictures were taken during diastole while the persons were holding their breath. The author gives a tabular report, classifying the athletes in groups according to the various sports. On the basis of his observations he states that the hearts of persons outstanding in the more strenuous sports are larger than those of other persons, even if their weight and physique are the same. He reasons that this is probably due to the fact that in sports the heart is taxed to its capacity, and that this effects a larger development. He asserts that these observations confirm the statement which he

made concerning the participants in the German sport contests in 1922.

Spleen Therapy in Polycythemia. — Friedemann and Deicher report that following the feeding of a spleen preparation to a patient with polycythemia, the number of erythrocytes decreased to about one third. The hemoglobin content of the blood decreased slightly. The authors point out that in this case the spleen preparation gave results comparable to those which Lichtwitz and Francke obtained in other patients.

Münchener medizinische Wochenschrift, Munich

76: 311-354 (Feb. 22) 1929. Partial Index

Historical Review of Pancreatic Diabetes. O. Minkowski.—p. 311.
Development of Electrocardiography and Its Significance for Internal Medicine. A. Hoffmann.—p. 315.
Meinicke's Clarification Reaction for Syphilis (M. K. R.). E. Meinicke.—p. 318.
Blood Group Determination in Civil Lawsuit. K. Böhmer.—p. 319.
Melanophore Hormone Content of Human Hypophysis. K. Ehrhardt.—p. 321.
*New Reducing Diet. F. Salzmann.—p. 322.
*Acute Meningitis Due to Excessive Insolation. H. Stursberg.—p. 326.
*Spontaneous Rupture of Uterus in Scar of Cesarean Section. H. Doerfler.—p. 327.
Prolonged Pregnancy. S. Heilbronn.—p. 329.

New Reducing Diet.—Salzmann prescribes from three to five so-called mutton days, two vegetable days and two mixed diet days with restriction of fat and sugar. This diet always resulted in loss of weight. The author gives details of the diet with menus, which satisfied even persons with a hearty appetite. Contrary to other reducing diets, this diet increased the patients' working capacity.

Acute Meningitis Due to Excessive Insolation.—Stursberg reports a case of acute meningitis with high fever which occurred after too long exposure to the sun's rays. The patient had spent a whole day in the glaring sunshine, very lightly dressed and without protection of the head. In the evening she developed a severe headache which prevented her from sleeping, and periods of unconsciousness were noted. The symptoms increased in severity and were accompanied by fever, stiff neck, small spots all over the body and erythema of the arms. Lumbar puncture showed many lymphocytes. After a week, the symptoms began to disappear. The author believes that the meningitis was caused by the extreme insolation and warns against it.

Spontaneous Rupture of Uterus in Scar of Cervical Cesarean Section.—Doerfler again reports his good results from cesarean section, which he has practiced for thirty years. He asserts that a well placed and fixed suture is the prime essential for preventing rupture. The author has had patients who have had three or four normal deliveries after one cesarean section, and others who have had several sections. He recommends only the longitudinal section of the abdominal wall and the transverse section of the peritoneum and the cervix, and emphasizes the importance of very careful suturing and asepsis.

Zentralblatt für Gynäkologie, Leipzig

53: 385-448 (Feb. 16) 1929

Incomplete Desquamation of Uterine Mucosa During Menstruation as Cause of Menorrhagia. W. Lahm.—p. 386.
*Late Hemorrhages in Puerperium. S. Beckmann.—p. 391.
Treatment of Eclampsia. F. Engelmann.—p. 397.
Stein's Method of Induction of Labor. M. Widera.—p. 403.
Plasma Cell Infiltrations in Gonorrheal Salpingitis. R. Joachimovits.—p. 406.
*Uterine Rupture in Old Scar of Cervical Cesarean Section. F. Süssmann.—p. 410.
Gynecology and Social Insurance. M. Hirsch.—p. 414.
*Brain Tumor and Pregnancy. W. Bickenbach.—p. 422.
Schubert's Method of Vaginal Plastic: Roentgen Diagnosis of Pelvic Kidney. D. Maluschew.—p. 428.

Late Hemorrhages in Puerperium.—Beckmann reports the case of a primipara, aged 31, who fifty hours after labor had a sudden uterine hemorrhage. It was checked temporarily by drugs stimulating contraction of the uterus. A cause for the hemorrhage could not be found. A douche of hot physiologic solution of sodium chloride stopped the hemorrhage. The author thinks that the hemorrhage was due to delayed retrogression of the decidua.

Uterine Rupture in Old Scar of Cesarean Section.—Süssmann opposes Hirsch's suggestion that cesarean section be adopted as the main method in operative obstetrics, and reports two cases of rupture of the uterus in the cesarean section scar.

Brain Tumor and Pregnancy.—Intracranial cholesteatomas are rare tumors and their diagnosis is particularly difficult in pregnancy. Bickenbach's patient, a secundipara, aged 26, had always been healthy, but had had some convulsions when a child. After her admission toward the end of her pregnancy, she had repeated tonic-clonic convulsions which became more frequent and more alarming as labor approached. The patient's condition grew worse and labor had to be terminated by anterior hysterotomy. The mother soon showed symptoms of a general infection which led to death. Postmortem examination revealed a large cholesteatoma of the brain and septic suppurative changes in all the organs.

Finska Läkaresällskapets Handlingar, Helsingfors

71: 1-74 (Jan.) 1929

Social Neuroses in Childhood: Experiences and Impressions. E. Lövegren.—p. 1.
*Histology and Endocrine Function of Ovaries. J. J. Chydenius.—p. 12.
Contribution to Question of Prognosis and Rational Treatment of Ischemic Paralysis. D. Rancken.—p. 22.

Histology and Endocrine Function of Ovaries.—Chydenius treats of the general conception of the cyclic changes in the mucosa of the uterus as due to substances produced by the graafian follicle and the corpus luteum, and reviews recent experiments in this field. While in his opinion the results of the biologic experiments can be brought into agreement with the main results of the histologic and cytologic examinations, he thinks it perhaps still premature to see in these results complete proof of the theoretical conception of the menstrual phenomena.

Ugeskrift for Læger, Copenhagen

91: 101-122 (Feb. 7) 1929

*Cancer Cell. A. Fischer.—p. 101.
Exophthalmic Goiter and Pernicious Anemia. E. Meulengracht.—p. 103.
Principles for Prosthesis in Congenital Cleft Palate. A. Fischer.—p. 108.
Extirpation of Spleen in Case of Pick's Disease (Polyserositis). P. Iversen.—p. 110.
Wedging in of Flap of Skin Without Suture in Partial Rhinoplasty. E. Dujardin.—p. 112.

Cancer Cell.—Fischer states that the cancer cell, in comparison with the normal cell, has little resistance and is short-lived. The tumor cells studied, both carcinoma and sarcoma cells from mammals, outgrow all normal tissue cells, homologous and heterologous, added to the culture in vitro. The rate of growth of the tumor cells in vitro, however, does not, even under the most favorable conditions, exceed that of the normal cell, but is, if anything, slower. The cardinal characteristics found in the cancer cells afford sufficient explanation of their unbounded growth in the organism. These characteristics are: aerobic glycolysis; increased proteolysis; the capacity to build up unending masses of protoplasm from substances insufficient for the growth of normal cells, and the capacity to utilize certain intracellular growth principles from the normal cells with which they come in contact.

91: 123-142 (Feb. 14) 1929

Some Remarks in Discussion on Factory and Pharmacy Drugs. K. L. G. Andresen.—p. 124.
*Acute Intestinal Invagination in Children: Disinvagination Under Roentgen Control. J. Nordentoft.—p. 127.

Acute Intestinal Invagination in Children: Disinvagination Under Control of Roentgen Examination.—In three of four cases reported by Nordentoft bloodless reduction was successful. In the fourth, operation disclosed an ileocolic invagination. In the fifth case described, roentgen examination gave a characteristic picture of intussusception, but bloodless disinvagination was impossible and laparotomy was done. The author concludes that roentgen examination may be of great value in the diagnosis of acute invagination in children and is easy and safe. The attempt at conservative reduction under control of the roentgen examination seems to him justifiable in most cases. If results are not immediately apparent, operation should be performed. Partial reposition is also useful, simplifying the operative intervention. The method is contraindicated in ileocolic invagination.